TECHNOLOGY DEPT.

Gas Journal

Vol. 266. 103rd Year. LONDON, JUNE 6, 1951. No. 4592. Price 1/-

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JUN 21 1951
DETROIT

Slough to Sydney, Rotherham to Rio

A shareholder writes: "The maps accompanying the annual report of Bell's fascinate me. The Trade Symbol must be familiar from China to Peru. Surely the salamander travels to the farthest edges of the earth. Slough is known in Sydney, Rotherham in Rio." By alliteration's aid Antwerp to Ahmedabad, Reykjavik to Rangoon, might be added from the comprehending list of places. Where engineering begins and industry expands, Asbestos in different forms and usages, each of special character and purpose, is the proved, trusted, obedient servant. Packings, jointings, insulations are among the essentials; no longer is the salamander a remote legend, but an industrial fact the wide world over, Asbestos being on the far-flung air-routes and in the structure and service of the planes themselves, in jet aircraft no less. Our annual report was enfolded in "an illustration of one of the most spectacular achievements in insulation ever attempted anywhere in the world." That was on Horten Spheres at the Government of India Fertilizer Factory at Sindri, Bihar. Rotherham in our shareholder's letter refers to W. N. Baines & Co., Ltd., one of our Group of Companies. Valves and steam fittings made by Baines excel in design, quality and craftmanship and carry their own fame. At Slough and at Rotherham the maps exhilarate us in speeding to the summons of engineering at home and abroad, from Glasgow to Gwelo, from Cardiff to Ceylon.

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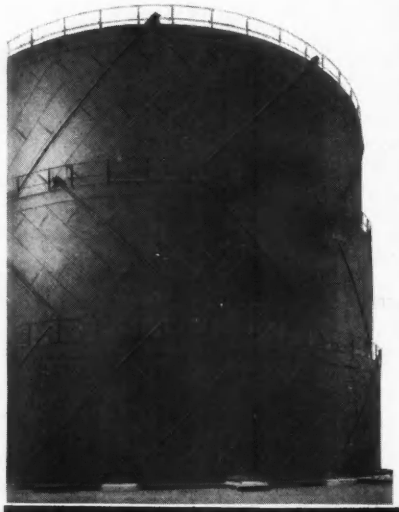

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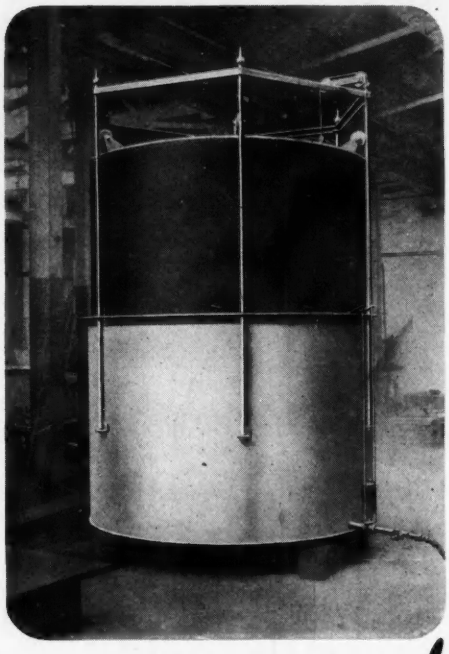

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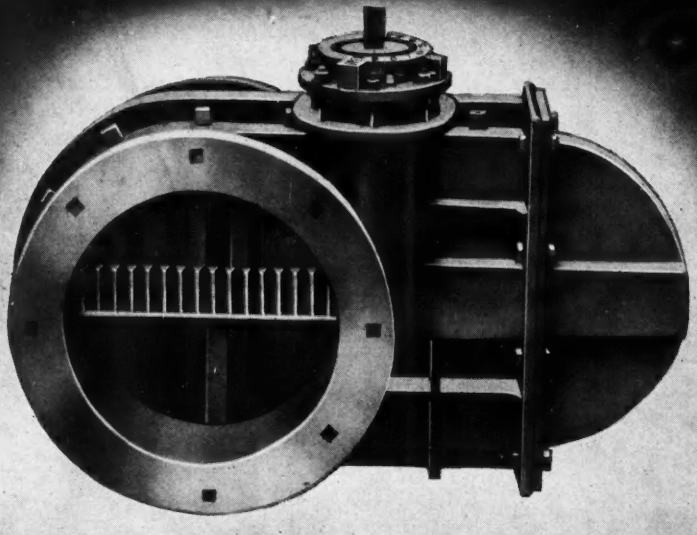

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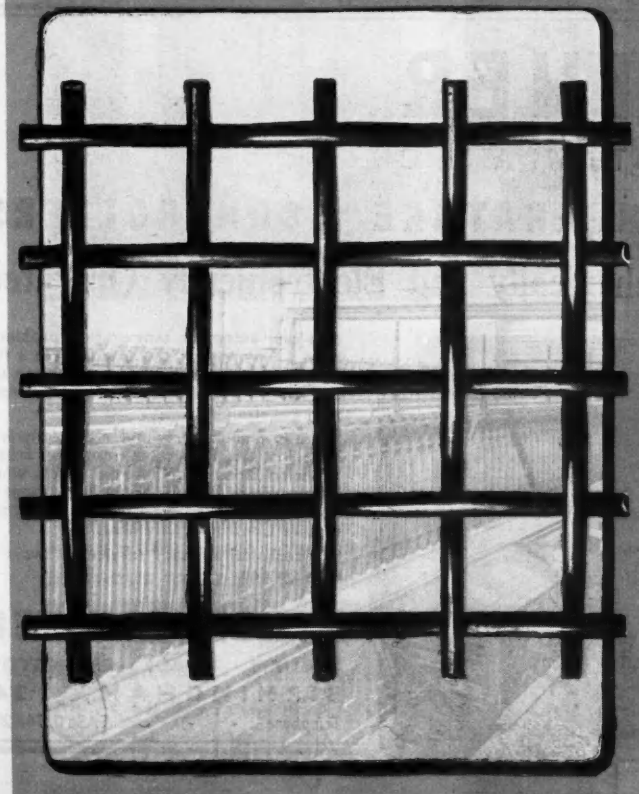

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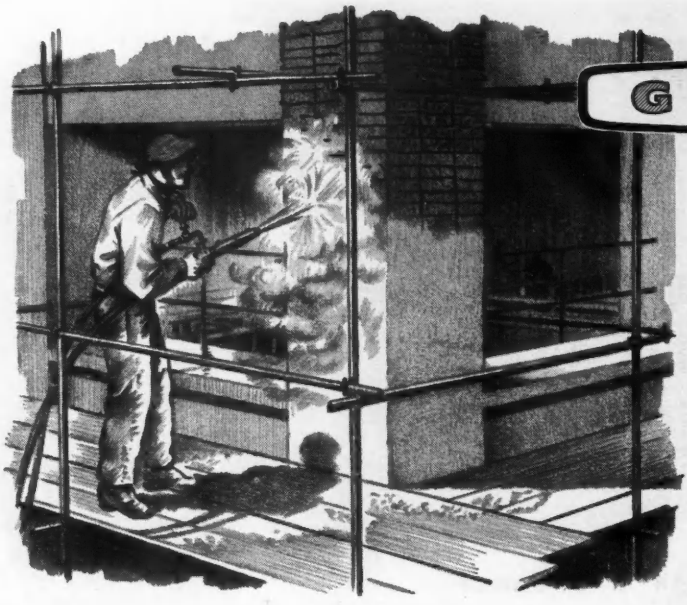

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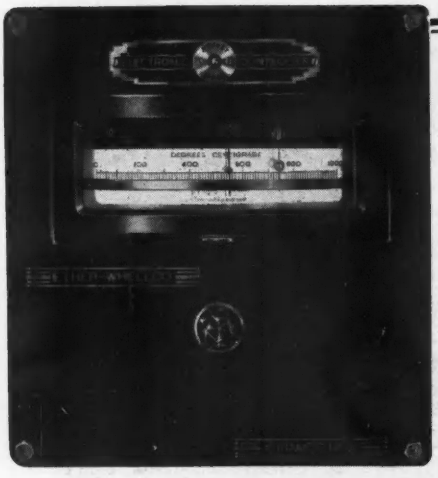

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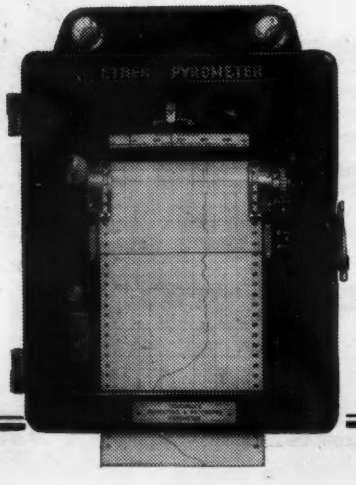

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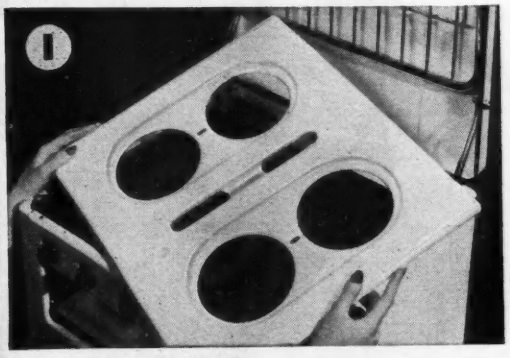

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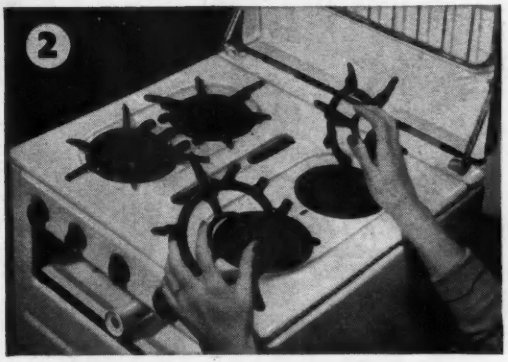

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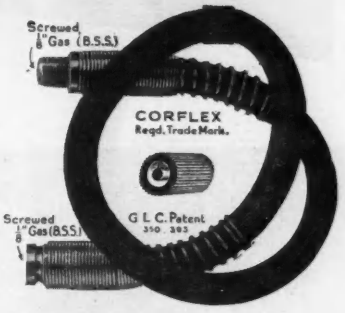

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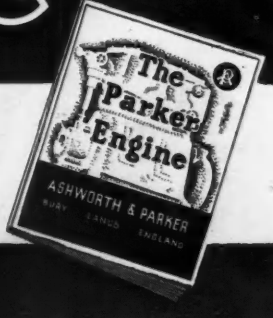

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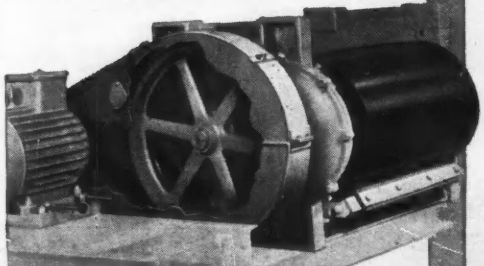

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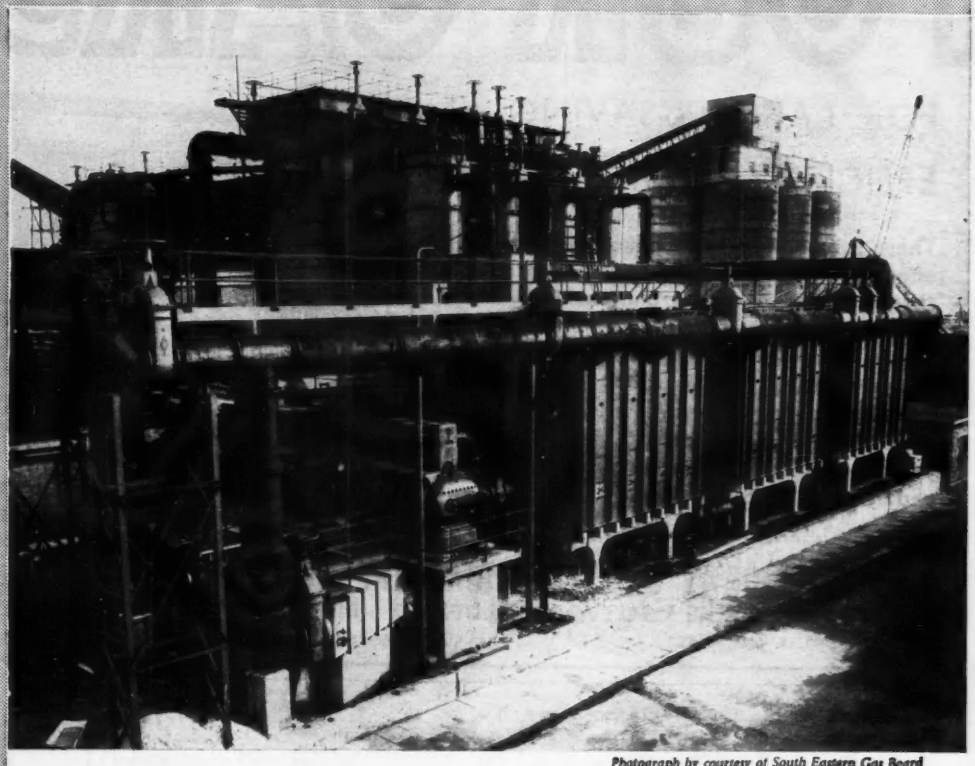

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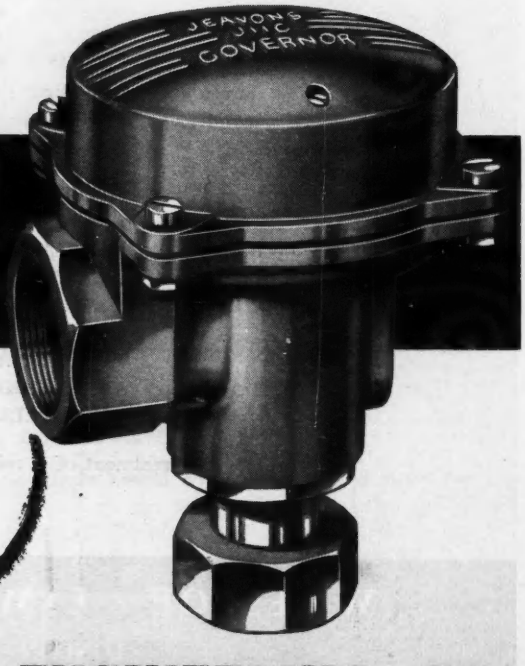

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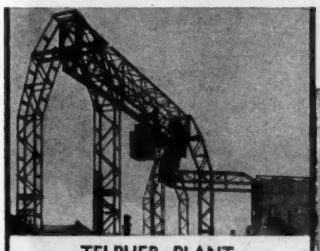

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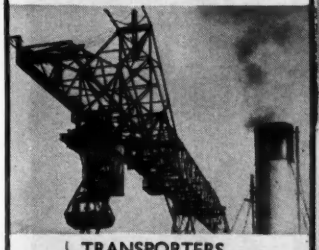

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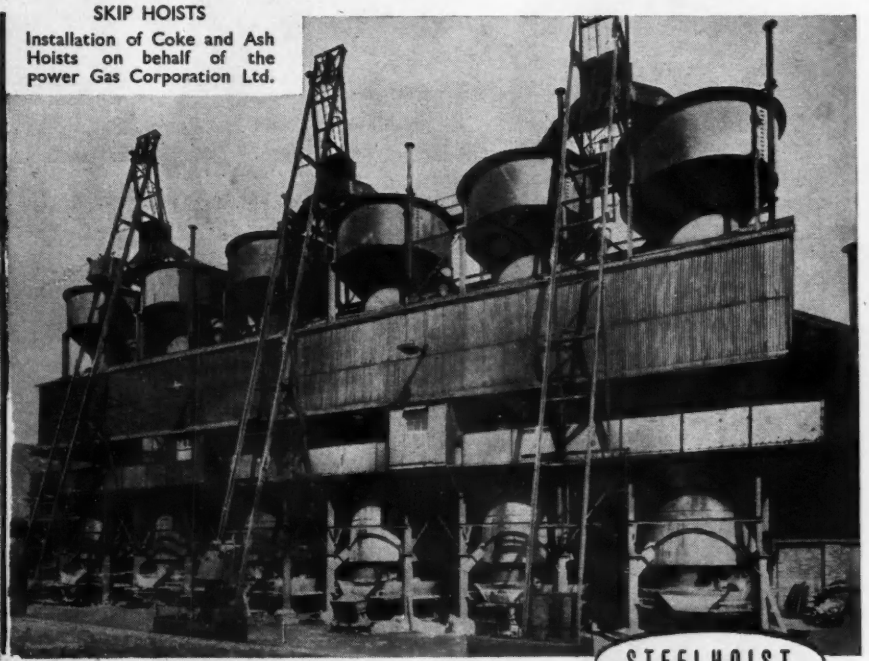

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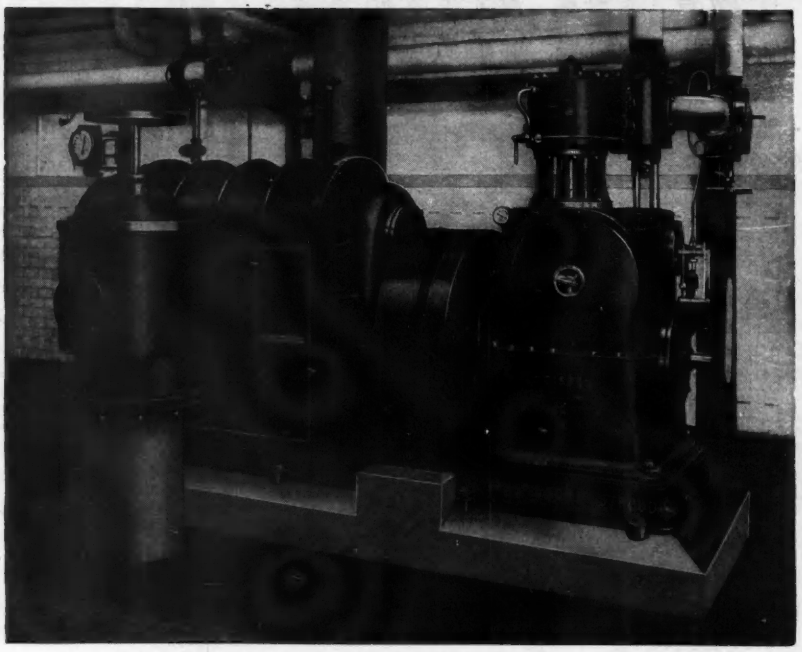

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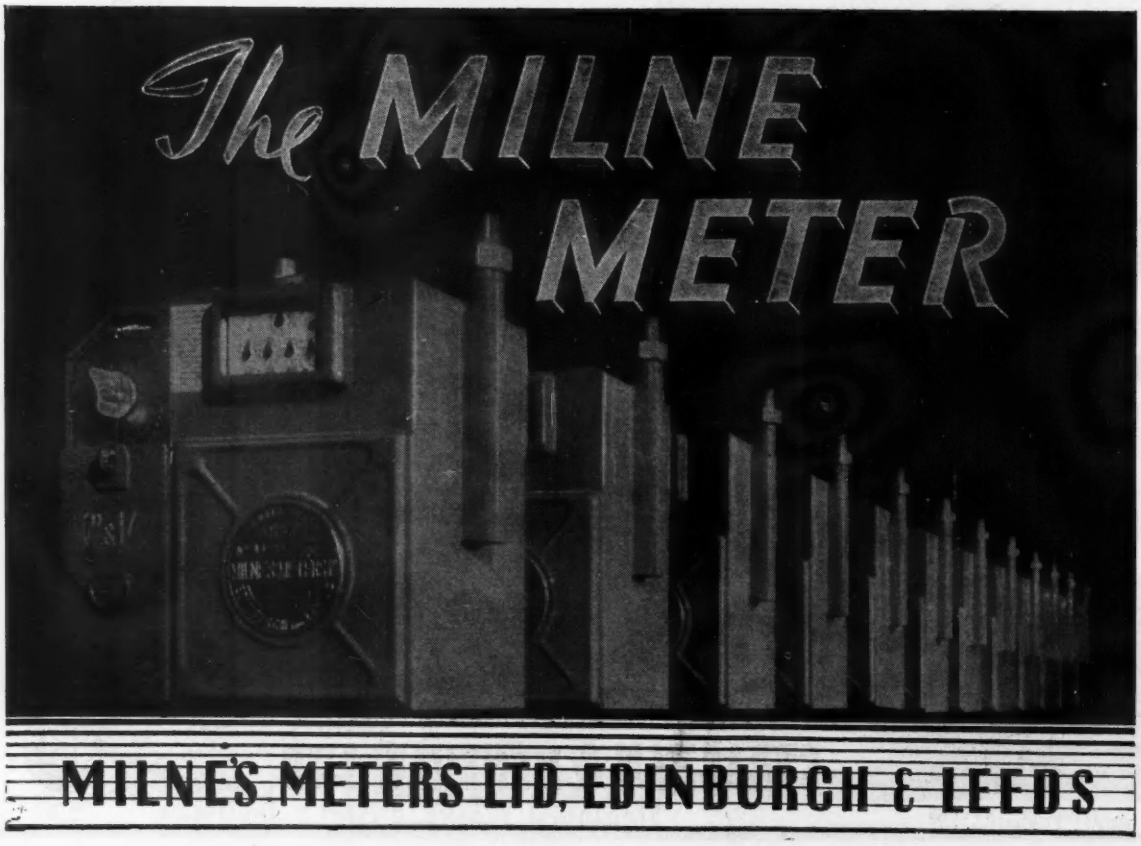

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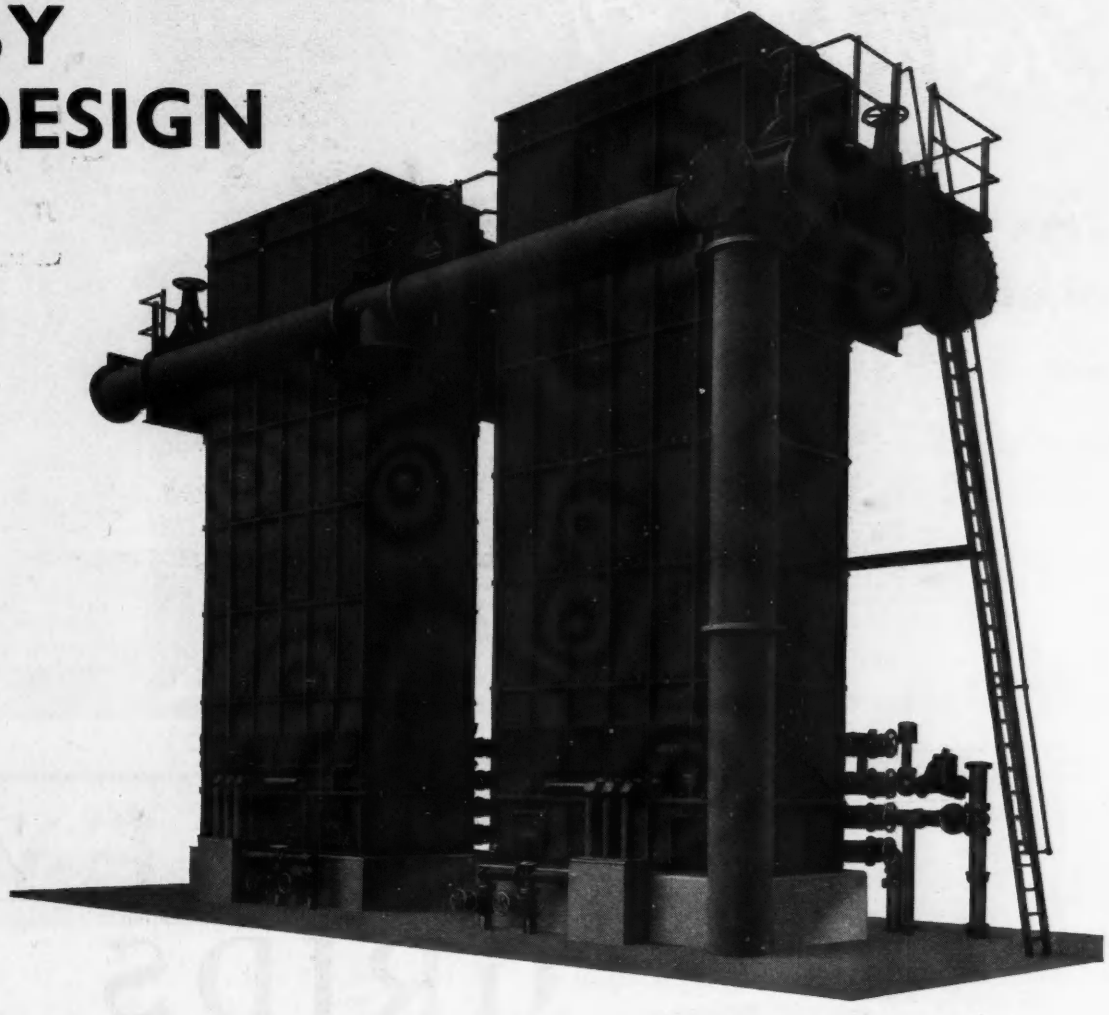

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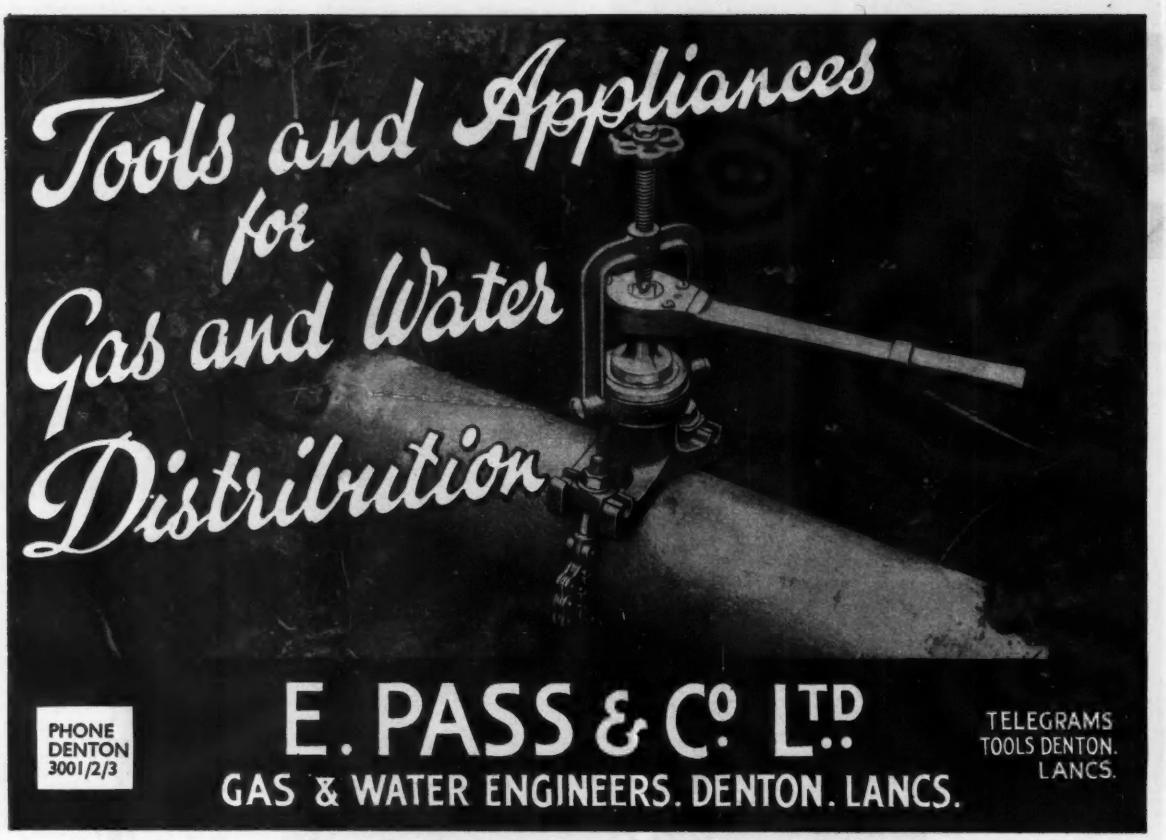

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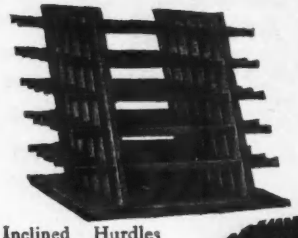

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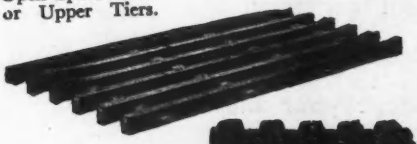
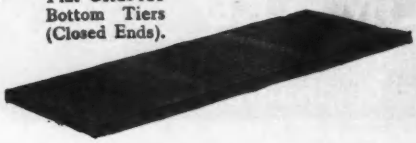


Patent Double-Barred Grids.

Flat Grids for Bottom Tiers (Closed Ends).



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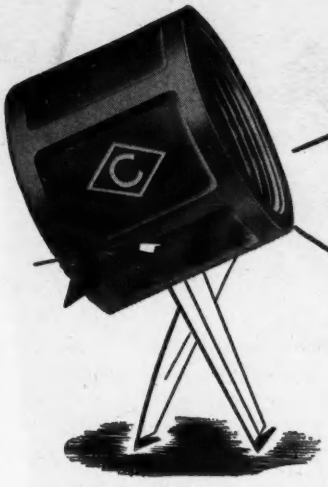

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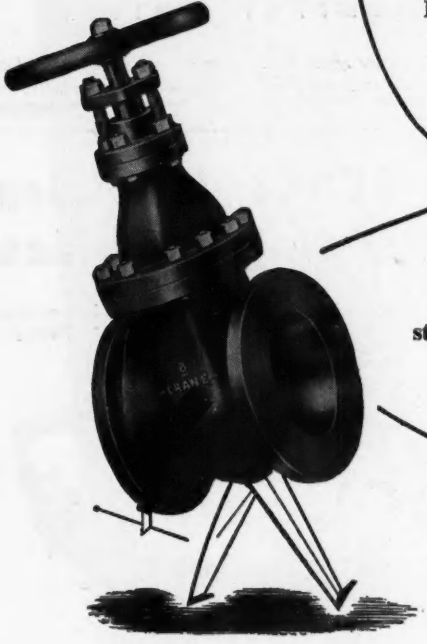

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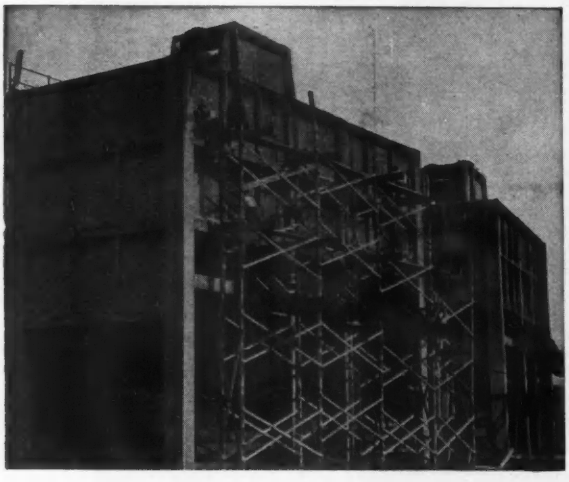

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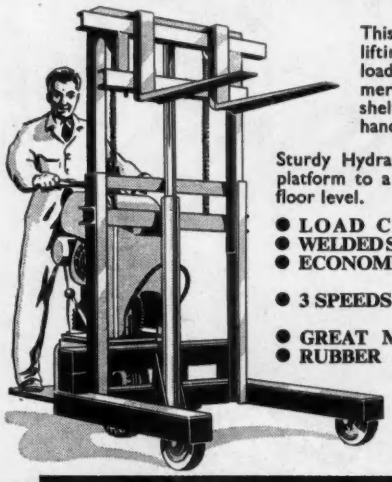

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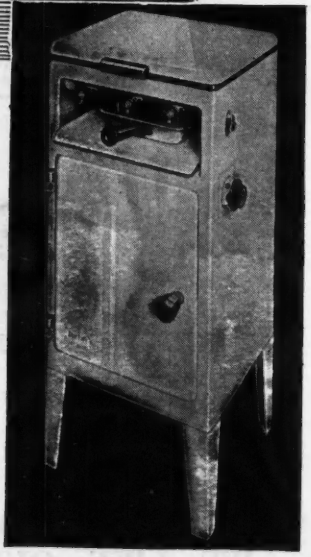

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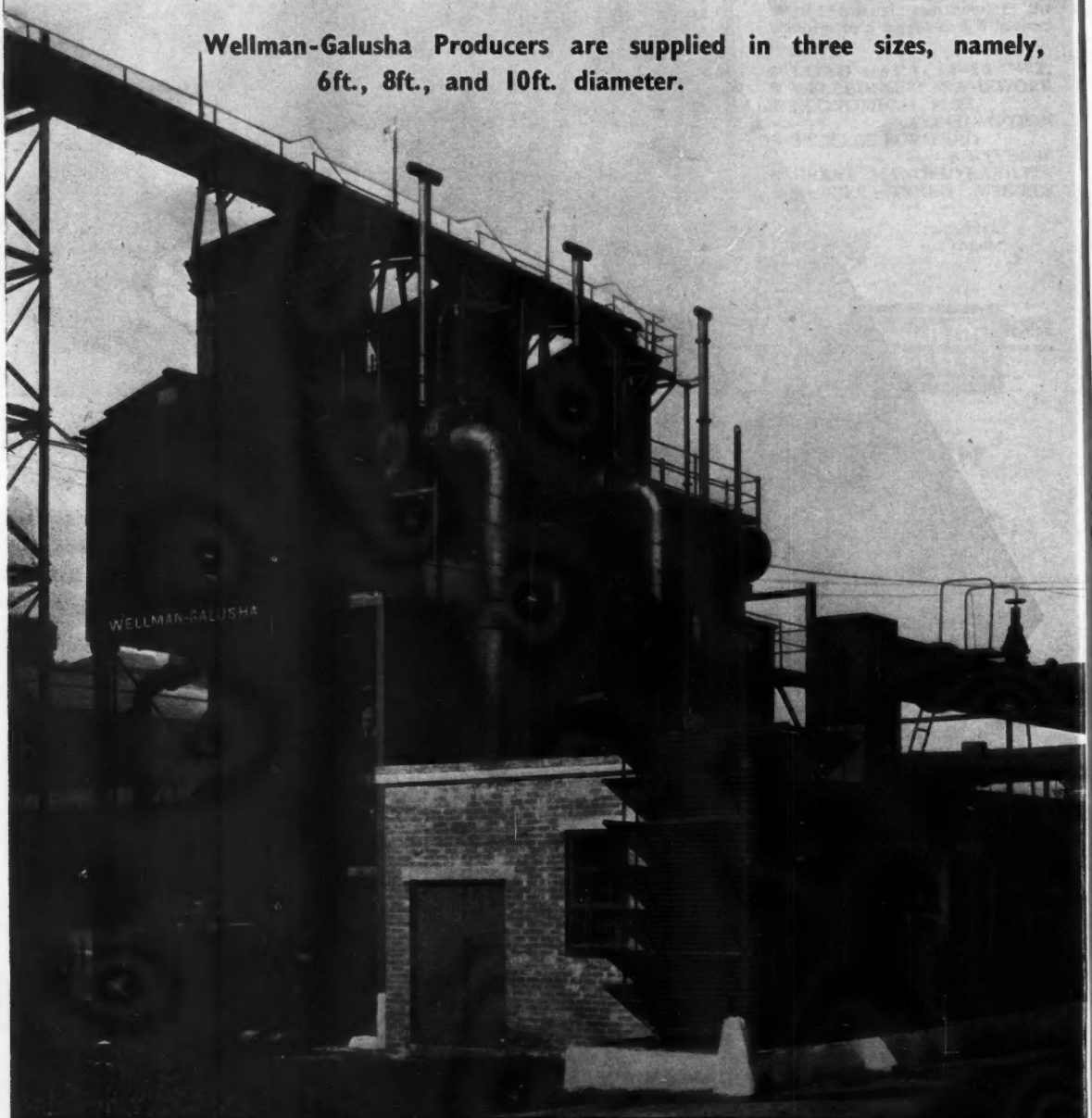

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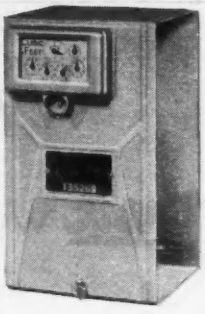

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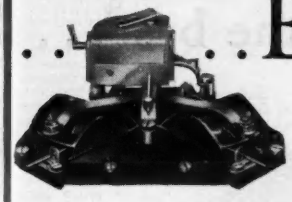

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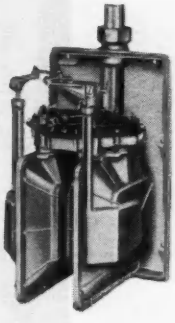

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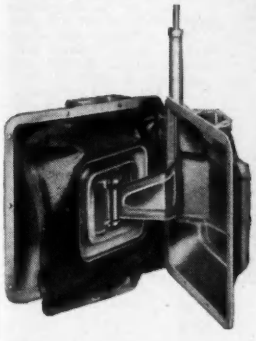
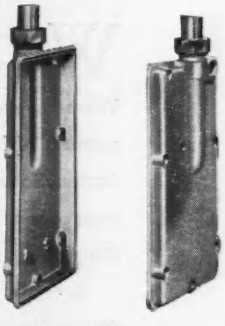


. . leads to another . . . .



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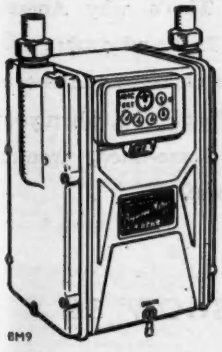

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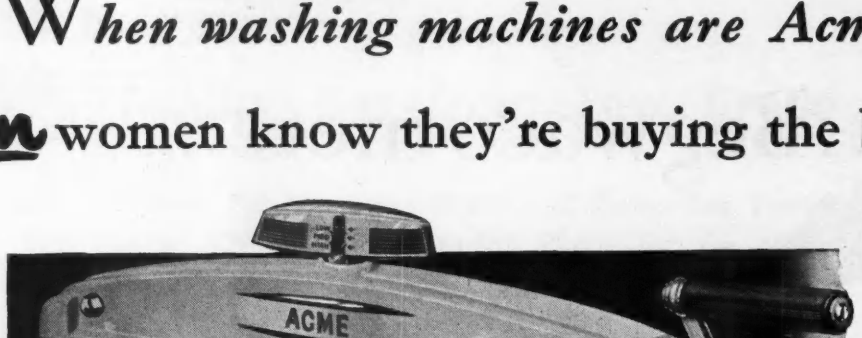

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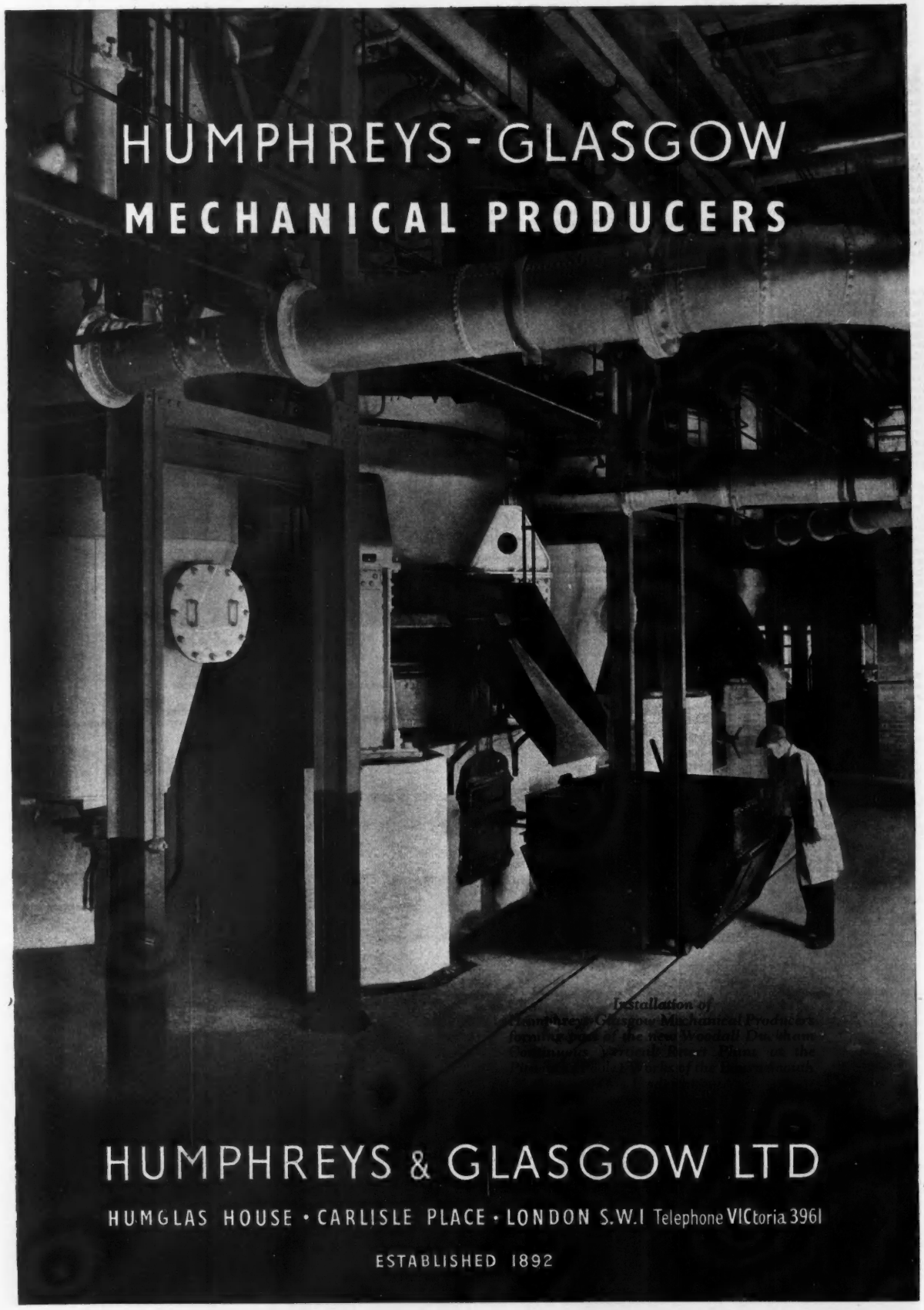
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103rd YEAR OF PUBLICATION

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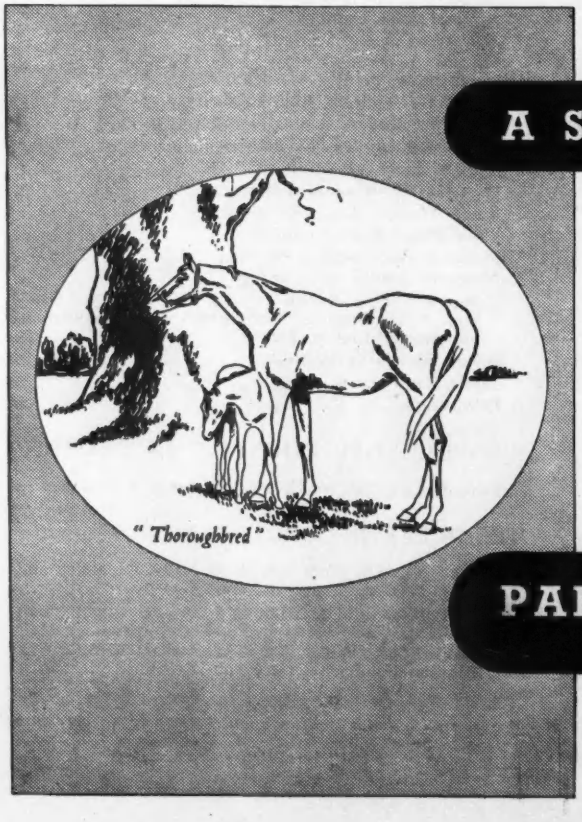

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GAS JOURNAL

VOL. 266. NO. 4592 103RD YEAR JUNE 6, 1951

AN ENGLISHMAN'S HOME

FIFTY years ago—the actual date was December 17, 1901—the statutory right which gas and other supply companies possessed to enter, by their servants, the houses of all sorts and conditions of people was described in the *Journal* as a very serious and responsible matter. The observation arose out of a County Court action in which one Adolphus Birdsall, basket maker, sued the Wakefield Gas Company for five guineas damages 'by trespass by unlawfully breaking and entering his dwelling house.' The Judge found a verdict for the plaintiff for 6d. in addition to 5s. paid into court, with costs. A collector, in the temporary absence of all the occupants, had lifted the latch of the street door, gone in, and collected the contents of the prepayment meter. The Judge was of the opinion that the collector called at an unreasonable time, and that when there was difficulty or inconvenience with consumers the Company should make some special agreement with regard to time of entering, and if the consumer did not comply, the proper course was not to supply him with gas.

The powers of entry were contained in the Gasworks Clauses Act, 1871, and they have been commonly exercised, when necessary, in the gas industry for many years. Opinion as to the seriousness of the matter has not changed. Gas men, like other normal human beings, have from earliest times respected the sanctities of the Englishman's home, and there has always been a divergence of opinion as to the extent to which the powers of entry should be exercised. Powers similar to those afforded 80 years ago, but modernised by the inclusion of a provision for the production of 'some duly authenticated document showing authority,' are contained in the Gas Act, 1948, and it was under those powers that the Eastern Gas Board defended a King's Bench Division action brought a few days ago by an Edmonton consumer, Charles A. Grove, for damages for trespass and wrongful entry. The judgment delivered by Mr. Justice Hilbery is therefore a matter of widespread importance to the gas industry. The case was reported in the *Journal* last week (p. 552). The evidence was that after several calls at Mr. Grove's house by inspectors who could elicit no reply, a series of special calls were made, still without response, and on three ocassions a printed prepaid postage card with spaces in which the householder could fill in the date and time when it would be convenient for the collector to call, was left at the house, and none was returned to the Board. Eventually an inspector took with him a skilled carpenter and a duly authenticated document. The carpenter removed a window pane and opened the door; the inspector collected 12s. from the meter and made his inspection; and the two men left the house secure, the carpenter having replaced the pane. During their visit they saw a neighbour to whom the inspector showed his card.

Whereas in 1901 the Wakefield County Court Judge found for the plaintiff, in this instance judgment was given for the defendant Board. The proceedings were based on paragraphs 34 to 36 of the Third Schedule of the Gas Act. Paragraph 34 requires an official to call at reasonable times and to produce his document of authorisation to anyone authorised to demand its production; for example a police constable or even a member of the public who may suspect that a felony is being committed. The document is a safeguard for the inspector as well as a protection against unlawful entry by persons pretending to be gas men. Paragraph 35 prescribes the notice to be given before entry, and paragraph 36 provides that premises which have been entered shall be left not less secure by reason of the entry. Mr. Justice Hilbery was unable to construe paragraph 34, particularly when read in the context of the two following paragraphs, as intended to deprive gas boards of the powers with regard to entry which their predecessors, the gas companies, had enjoyed.

As gas consumers we should not at all like the idea of returning from holiday to find an inspector had broken in and collected the contents of our meters, but we are quite unperturbed by the recent judgment be-

cause it has focused attention on the great protection which consumers generally enjoy against any wanton action. Quite obviously the gas industry would never think of alienating public opinion by making a practice of breaking into people's homes, but 'difficult' consumers cannot be allowed indefinitely to evade payment for their gas and thereby throw an undue burden on those who comply regularly with the terms of their contracts with the Board. There has been throughout the industry's legislation an intention to authorise in certain circumstances what would otherwise be an unlawful entry, and there is nothing extraordinary in conferring on a public utility undertaking a right to enter when there is a public interest to be protected. Evidence given during the recent action established that throughout the 35 years' experience in the gas industry of Mr. F. T. Brookes, Tottenham Divisional General Manager, the power to make forcible entry had been exercised as a matter of course and in the belief that it was legal. It was in the knowledge of the powers conferred by former Acts that Parliament based the Act of 1948, and the paragraphs in the Third Schedule to which we have referred do not alter or restrict the meaning, as the plaintiff contended.

PIMLICO

IT is something like 10 years since district heating, which had been developing on the Continent since the 1914-18 war, really blew up a storm cloud on the British horizon. From the first, realising that here was a system which, despite the scepticism showered upon it by the more conservative engineers, was nevertheless destined to seek large scale experiment in this country and, perhaps, have a very important effect on the gas industry, much of whose business it threatened to undermine, the *Journal* has followed its progress closely. Subsequent experiments showed that the champions of district heating had much to learn. The system most commonly adopted was dependent upon hot water storage combined with some form of heat-electric station, and it was not every such station that was willing or, indeed, able to supply this heat. Moreover, the estimates which had so bedazzled the housing authorities grew in stature to figures which would fill the most accommodating of tenants with misgivings. But these are still early days. At present the white hope of the district heating enthusiasts would appear to be the Pimlico scheme of the Westminster City Council which at present supplies two blocks of flats on this Thames-side site, and for which considerable extensions are planned.

The Pimlico scheme formed the subject of a paper, presented to the Royal Sanitary Institute on May 23, by A. E. Margolis, perhaps *the* world authority on district heating. (His paper to the 'Fuel and the Future' conference, published in the *Journal* of January 1, 1947, p. 40, gave some indication of his remarkable experience, which dates back to the earliest days of district heating and includes a spell as Manager of the District Heating Company of Hamburg, formed in 1921.) Mr. Margolis dealt first with the desirability of district heating on hygienic grounds, and these arguments which ranged from sanitation of the air to the prevention of rheumatism in the human body found a ready response with this audience of sanitarians.

The housing estate covers an area of 30 acres, and when completed will provide about 1,640 dwellings in 51 blocks. The majority of flats are in tall blocks eight, nine, ten and eleven storeys high. The lower blocks are three or four storeys high, and there are a number of maisonettes. Community centre, church, two schools, nurseries, public houses, and 18 shops are included in the scheme. To the east is the large block of flats known as Dolphin Square, which contains 1,220 dwellings, and to the north is Russell House with 74 dwellings. When Dolphin Square is connected and the scheme completed, 2,900 dwellings and other communal buildings with an approximate population of 10,000 will be served by the Pimlico district heating scheme. The maximum hourly heat demand for space heating was estimated for a temperature rise of 35°F. (65°F. inside, 30°F. outside) for the living rooms and at 30°F. for the kitchens, bedrooms and bathrooms, and for tap water on the basis of a daily demand of 15 gal. per head per day at an average of 130°F. The total maximum demand for heat for the whole of the Pimlico housing estate at the design stage was estimated, including heat loss of transmission and distribution mains, at 45 mill. B.Th.U. per hour, and including Dolphin Square at 73 mill. B.Th.U. per hour. Mr. Margolis said that the supply of heat to Dolphin Square was more economical than from the present three boiler houses with central heating boilers burning coke. On the other hand, the connection to Dolphin Square would improve the economy of the scheme because of the increased electricity output from the back-pressure sets and the better utilisation of plant.

HOT WATER ACCUMULATOR

TWO 1,350 kW turbo-alternators are installed at Battersea power station as additional house sets for the supply of the auxiliary power in the station, and two circulating pumps are arranged in the return main, and, when working in parallel, can deliver 70,000 gal. per hour. The return water can be heated by the exhaust steam in heat exchangers up to a temperature of 200°F. Under the river the 12-in. mains are located in an existing tunnel—a great saving in cost. The main feature of the sub-station is the hot water accumulator for balancing the fluctuation of the heat and electricity loads. Already something of a landmark, this 126-ft. high structure has a useful storage capacity at a temperature difference of 70°F., amounting to 3,500 therms, but it is likely that this figure will be increased to 4,000 therms; for the same useful heat storage of town gas a gasholder of about 20 times the size of the hot water accumulator would be required.

Two sets of circulating pumps are provided in the pump house, one for the Pimlico estate and the other for Dolphin Square. On the completion of the estate a maximum circulating water quantity of 80,000 gal. per hour against a head of 40 ft. of water will be required. The central position of the sub-station made possible the arrangement of five independent circuits

for the heat supply to the buildings, practically without any increase in the length of the heat distribution systems. The heating water is supplied to each block of buildings at a higher temperature than required for space heating and adjusted to the right temperature. The hot tap water in the buildings is heated in calorifiers to a temperature of 130°F. The heat supply is metered at the boundary of the station and in addition by steam meters for live steam to the turbines and for direct supply in emergency. At the sub-station the heat is metered again, and for the outgoing heat two more meters are provided. Because the heat supply to the blocks can be easily controlled from the sub-station, no meters are provided for the blocks of flats.

The annual heat demand for space heating and hot water supply for an average size flat and for a normal heating season has been estimated at 535 therms, and this includes about 4% for heat losses. The total heat demand for the estate when completed is estimated at 1,070,000 therms per annum, including the requirements of Dolphin Square, 1,670,000 therms per annum. Weekly flat rate charges for space heating and hot water supply have been provisionally fixed at 3s. 7d. for one room, 6s. 7d. for two rooms, etc., 8s. for three rooms, and 9s. 5d. for four rooms—all with kitchen and bathroom. Mr. Margolis anticipates that these rates will ultimately be reduced.

11,000 TO BENEFIT

BY late summer about half the ultimate total heat demand of the scheme will be supplied, and meanwhile the Council has decided to extend the supply of heat to the Warwick Way estate with 80 dwellings. On completion of both estates, together with Dolphin Square, about 3,200 dwellings, with a population of 11,000, will be served by district heating. According to Mr. Margolis, 'about 11,000 tons of coal would be saved as compared with the fuel consumption of the central heating boilers in Dolphin Square and with the present conventional methods of heating, by coal fires, electricity or gas.'

The discussion which followed the presentation of this interesting paper was not conspicuous for its relevance to the basic economic factors involved; indeed, it is doubtful if all the speakers understood the proper significance of the figures relating to cost. Much of their comment was, understandably, concerned with smoke abatement, and one had the impression that district heating was hailed as the only solution to that harassing problem. Surprisingly enough, Mr. Moya, one of the two architects responsible for the scheme, rushed after a red herring in the direction of the new towns (which he said looked like Kingston bypass without the traffic), only to be brought back by the firm hand of the Chief Engineer at Hemel Hempstead. Criticism of space heating by electricity was harsh; by gas, not so harsh. Criticism of hidebound (cautious?) local authorities was harshest of all. One hero even defended the open fire; there should be one, he said, in every dwelling, for good old-fashioned reasons. And the representative of the North Thames Gas Board kept quiet.

As an experiment Pimlico is extremely interesting and may perhaps succeed, for it has everything on its side. Of the 200 generating stations being constructed, how many will be in a position to supply heat from back pressure boilers? How many estates can be built sufficiently near those stations to make heat transmission feasible and economic? And since one of the principal requirements is building upwards instead of outwards, how far can this be carried and how popular will it be? Not everyone wants to live under the conditions of the downtown area in America. As for Mr. Margolis, his work demands the admiration of all interested in fuel problems, and his ideas are, to say the least, progressive. 'A coal fire,' he said in his reply to the discussion, 'is a nuisance to your neighbour. So is your dog, and you buy a licence for that. The inference is obvious!'

LAMP LOVERS ONLY

ONE of the more rewarding by-products of the Festival is the endeavour on the part of hosts of firms and organisations to 'do something special.' We are pleased, therefore, to draw readers attention to the special something produced by William Sugg & Co., Ltd., at their Westminster works. This is a small museum in which is displayed a remarkable variety of old street lanterns and interior lighting fittings. No firm is better qualified to publicise in this way past achievements, for Suggs commenced their business as manufacturers for the gas industry as early as 1837, and the development of the firm has paralleled the evolution of the modern street lamp. This small exhibition has been arranged with care, and the lamps are 'supported' by well-preserved photographs and other pictorial relics which contribute to the convincing period atmosphere. Indeed, one room is completely furnished and decorated in the style of Victorian days, and for those of us whose memories cannot be extended to such oppressive surroundings, the effect is curiously like being projected into a four-sided stage set and waiting for Fanny's entrance.

For the imaginative there is certainly romance in gaslight. One imagines it whistling cosily in rooms long forgotten, and its soft glow on streets unshaken by the internal combustion engine. Among the vintage lanterns shown, each specially mounted on short stands, are the 'Bagby' Lexagon, from Coventry, one of the first with a spire, the 'Warwick' flat flame from Birmingham, whose umbrella top first graced that city's streets 90 years ago, and the delightful 'Cradle' lantern which looks exactly as it did at the time of the 1851 exhibition; most graceful is the 'Globe' from the gateway of the Houses of Parliament. Most of these are from Mr. Peter Varnon's collection. Admission to the museum is free and a visit to the Ranelagh Works, Chapter Street, S.W.1, is recommended. Should the visitors cast a covetous eye at any of the rarer exhibits, no doubt the representative of the original blue lamps, which have been lighting the steps of London's police stations since long before the beginning of this century, will prove an effective deterrent.

LINKS WITH LOCAL AUTHORITIES

CONCERNED as it is with the interests of gas consumers in the areas of some 200 local authorities the North Western Gas Consultative Council has taken a sensible step in calling representatives of the councils into consultation in examining the report of the North Western

Gas Board for the first year under nationalisation. There was no statutory obligation to do so, and as a matter of fact no other meeting of such a character has been held anywhere in the British Isles. Many of the undertakings vested in the Board were formerly owned by the municipalities, which therefore have a special interest in what has been done since they handed them over. Quite a lot has happened. A 15-year plan has been prepared and is being pressed forward as rapidly as possible, and there has been a change in the Chairmanship of the Board. Mr. D. P. Welman, Colonel W. M. Carr's successor, well known though he is in industrial circles, is a stranger to some of the local authorities, and the Consultative Council did well to give him a platform from which to tell them something about the past achievements and future plans of the Board. He assured them that the Gas Act provided against any possibility of the Board degenerating into a bureaucratic organisation without human capacity or feeling.

One-third of the gas industry was municipally owned prior to vesting day and it is natural that close links should remain. A happy instance was the recent inauguration of new vertical retorts at Burton-on-Trent. Their erection began while the Corporation was in charge, and the East Midlands Gas Board gave the Mayor and members of the former Gas Committee pride of place at the inauguration. The Mayor, on his part, recognised the greater scope for development resulting from nationalisation and there was a general feeling of satisfaction that gas supply would keep pace with the industrial developments of the town and district.

Personal

Mr. J. Hadden, Assistant Managing Director of William Edgar and Son, Ltd., is retiring from active business, but will remain a Director of the Company.

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Mr. H. Fishburne has been elected to the board of W. J. Jenkins & Co., Ltd., of Retford, and **Mr. D. C. Miles** has been appointed Secretary in succession to the late Mr. W. B. Vickers. Mr. Fishburne has held the position of Erection Manager for the Company for the past few years. He is the son of a former Secretary of the Company, Mr. P. Fishburne, who died in 1937.

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NORTH THAMES APPOINTMENTS

The North Thames Gas Board announces the following appointments: S. T. P. Perry to be Deputy Chief Engineer; J. A. Hepworth to be Assistant Chief Engineer (while retaining his appointment as Group Engineer, Group II); G. Dougill to be Planning Engineer (to work as a member of the Chief Engineer's headquarters staff at Westminster); J. Cross and L. J. Clark to be Joint Deputy Station Engineers, Beckton; A. C. Nelson to be Senior Assistant Engineer, Beckton.

Diary

June 7.—Midland Junior Gas Association: Ladies' Day. Visit to Pottery Works, Stoke-on-Trent, and Trentham Gardens. Luncheon, Grand Hotel, Hanley, 12.30 p.m.

June 8.—London and Southern Junior Gas Association: Annual Business Meeting, 178-180, Edgware Road, 6.30 p.m.

June 9.—Manchester District Junior Association of Gas Engineers: 'The Economics of Gas Manufacture,' M. Redman (North Western Gas Board); Visit to the works of W. C. Holmes and Co., Ltd., Huddersfield.

June 9.—Scottish Junior Gas Association (Eastern District): Annual Outing, Forfar.

June 11.—West Midlands Gas Consultative Council: Dudley Room, Queen's Hotel, Birmingham, 2.30 p.m.

June 11.—Naigo Conference: Meeting of Gas Staffs, Blackpool, 9.30 a.m.

June 11-12.—Institution of Gas Engineers (Eastern Section): Annual Meeting, Royal Hotel, Lowestoft.

June 15.—Institution of Gas Engineers (Midland Section): Summer Meeting and Chairman's Day, Oxford. Works visits and tour of colleges.

June 16.—Scottish Junior Gas Association (Western District): Visit to works of General Gas Appliances, Ltd., Audenshaw, Manchester.

June 18-29.—Fifty Years of Industrial Standardisation Exhibition, Science Museum, South Kensington. Gas Council exhibit.

June 20.—Eastern Junior Gas Association: Annual General Meeting, Globe Hotel, King's Lynn. 11.15 a.m. Afternoon coach tour to Sandringham Gardens and Hunstanton.

June 23.—Wales and Monmouthshire Junior Gas Association: Ladies' Day.

June 23.—Western Junior Gas Association: Summer Meeting and Ladies' Day, Torquay.

June 23.—Manchester District Junior Association of Gas Engineers: Ladies' Day, Chester, and visit to Chester works.

June 25.—North Eastern Gas Consultative Council: Leeds, 2.45 p.m.

June 28.—North Thames Gas Consultative Council: Westminster City Hall, Charing Cross Road, 2.30 p.m.

June 29.—Northern Junior Gas Association: Annual General Meeting.

June 30.—London and Southern Junior Gas Association: Ladies' Day and Summer Outing, Windsor, Cookham, and Marlow.

July 3-6.—Royal Show, Cambridge. Gas Council exhibit.

July 11.—Gas Council Commercial Managers' Committee, Gas Industry House. 10.15 a.m.

1951 'Journal' Directory

THE following changes have been notified during the past month. To keep the information in the 1951 edition of the *Gas Journal Calendar and Directory* up to date readers are invited to note these alterations (together with the appropriate adjustments relating thereto in the 'Personnel' section, pp. 137-152):

Page 22.—NORTH WESTERN GAS CONSULTATIVE COUNCIL: Add Councillor S. Hanham (Poulton-le-Fylde), Alderman W. Tattersall (Birkdale), Councillor J. Tildsley, J.P. (Runcorn), Councillor J. F. Jackson (Nantwich), Councillor W. Fearon (Millom), and Councillor Mrs. A. Rhodes (Bacup), *members.*

„ 22.—SOUTH EASTERN GAS CONSULTATIVE COUNCIL: Add Councillor E. Carter (Bexhill), Councillor G. V. Cole (Broadbridge Heath), F. G. Norman (Ashford), Mrs. C. Herbert (Tunbridge Wells), and Councillor Mrs. B. M. Giles (Margate), *members.*

„ 23.—SOUTHERN GAS CONSULTATIVE COUNCIL: Add Councillor F. Smart (Cowes), *member.*

„ 23.—WEST MIDLANDS GAS CONSULTATIVE COUNCIL: Delete C. W. Parkes, J.P., *member* (resigned); add Councillor Mrs. M. Matthews (Solihull), *member.*

„ 78.—HORLEY: Delete B. Long, *Local Manager* (retired).

„ 91.—REDRUTH: Delete H. Richards, *Unit Cont.* (retired).

„ 101.—WALES GAS BOARD: Manager, South Wales Eastern Gas Grid, T. S. Ricketts.

„ 111.—WEST MIDLANDS GAS BOARD: Add Professor F. H. Garner, O.B.E., PH.D., *part time member.*

„ 177.—SOCIETY OF BRITISH GAS INDUSTRIES (Officers for 1951-52): *President,* Lord Simon of Withenshawe; *Chairman of Council,* F. B. Holmes; *Vice-Chairman,* W. H. G. Roach.

„ 181.—MINISTRY OF FUEL AND POWER: *Parliamentary Secretary,* Harold Neal, M.P., vice Alfred Robens, M.P. (now Minister of Labour).

Asbestos Cement Prices.—The Minister of Works has authorised an increase of 10% in the maximum selling prices of asbestos cement building materials manufactured by Turners Asbestos Cement Co., Ltd., and Tunnel Asbestos Cement Co., Ltd., as from April 30.

Cookery Demonstrations.—At the invitation of the Fife Group of the Scottish Gas Board, 'Miss Main,' the demonstrator of R. & A. Main, Ltd., took part in Kirkcaldy Festival Week by giving cookery demonstrations at the Beveridge Hall. The series comprised nine demonstrations which were very well attended by appreciative audiences.

At the Invitation of the North Thames Gas Board a party of about 100 members of the London and Southern Junior Gas Association visited the Board's tar and ammonia products works at Beckton last Saturday. This was the first time the Association had visited these works, and the members were greatly interested in everything they saw. They were the guests of the Board at lunch, prior to which they had the opportunity of inspecting the welfare centre.

A Civic Exhibition at Hamilton was held in connection with the Festival of Britain. The exhibition comprised the various Town Council departments and an invitation was sent to the Lanarkshire Group of the Scottish Gas Board to participate. This invitation was accepted and the Gas Stand proved an outstanding attraction and was favourably received and commented upon by the public and by the Town Council authorities. Cookery demonstrations were given daily by the Group's demonstrator and home service advisor, and over the week 600 people attended 11 demonstrations. Gas industry films were also shown and the attendances at the film shows totalled 1,180. About 4,000 people visited the exhibition.

News in Brief

Southern Gas Board.—The address of the headquarters of the Southern Gas Board is now 164, Above Bar, Southampton. The new telephone number is Southampton 76362.

Duchess Visits Gas Stand. — The Leicester Industries Exhibition and Trade Fair now being held at the Granby Halls, Leicester, was visited by H.R.H. the Duchess of Kent on May 23. During her tour of the exhibition she visited the stand of the East Midlands Gas Board. 'Gas in Leicester industry,' was the theme of the exhibit, which included a comprehensive display of industrial and domestic equipment.

'Mr. Therm Goes County.'—The revival of traditional British cookery recipes is one of the gas industry's contributions to the Festival of Britain. The idea is entirely new, and the present time is an excellent opportunity of introducing such a book to the public. Many of the recipes, which are the age-old favourite fare of some 40 odd British counties, will be a pleasant surprise to those living in Britain, and the book should prove an interesting souvenir for the many visitors from overseas. Of special interest is the fact that recipes taken from this book will be used in Festival Fare, the national cookery competition organised by the Women's Gas Federation. The book is illustrated by David Langdon. 'Mr. Therm Goes County' is being sold by the Gas Council, and by the area boards through their local showrooms at 3s. a copy. In addition, the recipes are being printed in single page form.

Gas Service Vans of the Northern Gas Board in Newcastle are to be equipped with short-wave radio so that the system for dealing with emergency calls can be speeded up even further. A Board official commented 'This is an innovation in Newcastle so far as the gas authority is concerned. It will mean that we can direct our vans to emergency calls more efficiently and in addition control the direction of labour.'

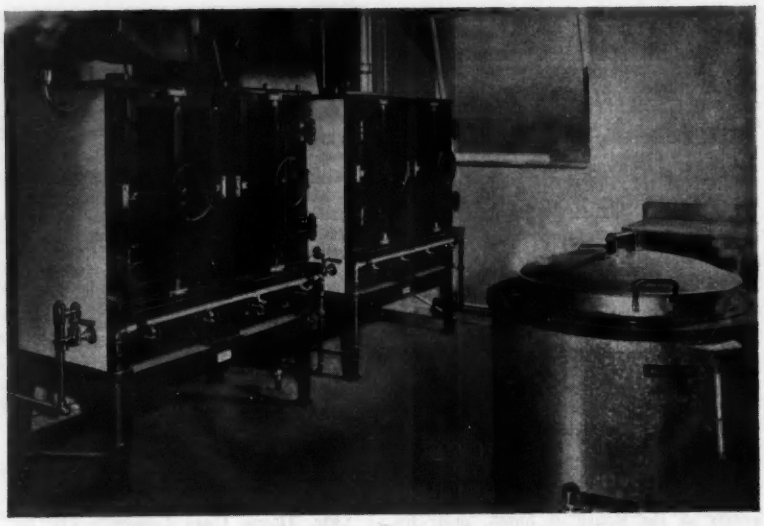
Ground Sulphur Price Increase.—A Board of Trade Order came into effect on June 1, permitting increases in the maximum prices of all grades of ground sulphur. These increases of approximately 30% result mainly from the rise in freight rates since the start of the year. Copies of the Order, the Ground Sulphur (Prices) Order, 1951 (S.I., 1951, No. 934) can be obtained, price 2d. from the sales offices of the Stationery Office.

A New Motor Tanker, the *Ben Hittinger,* intended to become the flag ship of the National Benzole Company's fleet, was launched on May 21 at the Charles Hill and Sons yard at Bristol. She is named after the present Chairman of the Board, Mr. A. Hittinger, who, in the 32 years of its existence, has done so much to help the company achieve its present eminent position in the motor spirit distribution world. Mr. Hittinger's niece, Mrs. Lionel Brinkworth Hittinger, performed the launching ceremony.

In a Changing World.—When Hammersmith Day College students (clerical employees of J. Lyons & Co., Ltd., Cadby Hall, Kensington), visited the Building Centre, Conduit Street, recently, Mr. R. J. Gregg, Publicity Manager of the Gas Council, joined them in a friendly chat about gas in the home. The girls were among those who had recently attended a series of three Gas Council lectures under the title of 'The Home in a Changing World.'

CRYPTO SERVICE IN FESTIVAL KITCHENS

Crypto, Ltd., through Hagenbach's, of Wakefield, the catering concessionaires, have supplied, installed, and have undertaken to maintain the complete catering equipment and food preparation machinery in four of the South Bank Festival restaurants and bars—namely, the Thameside and Regatta restaurants and the Harbour and '51' bars. Crypto, Ltd. (which is one of the Lancashire Dynamo Holdings Group), was also responsible for the design and layout of the kitchens concerned. The above photographs show (left) the Thameside restaurant kitchen with batteries of Crypto 'Rotapan' steamers and unit ranges; and (right) a general view of the main kitchen of the Regatta restaurant.



Two 33-in. double compartment gas steaming ovens and 30-gal. dual purpose boiling pan.

Housed on two floors of the administrative block, South Bank's staff canteen is called on to cater for the whole of the staff on the site throughout the two turns of duty.

FESTIVAL STAFF CANTEEN

Hot-closet with bain marie.

ON the first of the two floors is the extensive kitchen, which together with the relevant stores, occupies some 2,500 sq.ft. The main items of equipment include a 6 ft. gas hot-closet with bain marie top, four 30-gal. gas boiling pans and a 30 gal. gas dual purpose boiling pan with 22 gal. inner, two 24 in. gas toasters, three 5 ft. 2 in. gas boiling tables, two 33 in. single-compartment cabinet type and one vertical battery of two 35 in. gas roasting ovens, two 33 in. double-compartment and one 18 in. single compartment gas steaming ovens and two 6 ft. 11 in. three-pan gas fryers. All are by R. & A. Main, Ltd., who also supplied the ancillary equipment.

The main items of equipment are sited to afford maximum natural light. Storage is conveniently planned, the dry stores having doorways at each end to facilitate receipt and distribution; the meat, fish and cold-room stores open on to the appropriate preparation rooms, as also does the vegetable store. Ancillary equipment is well sited in relation to its function.

Seating for 450 Persons

On the floor above the kitchen are the main canteen and the cafeteria with the wash-up situated between. The main canteen provides seating for over 450 persons at tables each accommodating four or six. The servery, fed by three service lifts from the floor below, incorporates along its back wall two 10 ft. gas hot-closets also by Main's. The service counter is over 50 ft. long, and a triple chrome tray rail is incorporated. The traffic sequence is via hot service to the cold service counter. Soup containers and tea and coffee making units are incorporated in the counter. The cafeteria affords seating for 150 and is served by a 27 ft. 6 in. × 5 ft. angled counter, similar to that in the canteen.

The wash-up between the canteen and the cafeteria is arranged to deal with the requirements of both simultaneously, and, adjacent to it, is the sandwich preparation room.

The executives room, situated on the lower floor, accommodates 60 and has its own 12 ft. 6 in. servery incorporating gas hot-closet and bain marie with fitted containers.

This staff canteen is operated by Messrs. Scottish Canteens (London), Ltd.; the architect responsible for the layout was Edward D. Mills, A.R.I.B.A., and the equipment was installed by Messrs. Matthew Hall, Ltd.

Underground Gasification Trials

THE trials on underground gasification of coal which are being conducted by the Ministry of Fuel and Power and which have been in progress at Newman Spinney, near Chesterfield, since 1949 are being continued at that site for another year. Other trials are being initiated at a site in Worcestershire, near Kidderminster. At Newman Spinney two new systems will be involved. It is hoped to start gasification at about 80 ft. depth on one during June. The other and probably larger system will, if possible, be created later by high pressure in the Furnace seam at nearly 200 ft. depth using the new technique developed in 1950. These trials aim to discover what changes in gas quality or output, and in the spread of the reaction underground, result from changes in air rate, pressure, use of steam and other factors.

It is also important to find out what effect different coals or geological formations may have on the process. This involves a succession of tests on a variety of sites representing differing conditions, in the selection of which the National Coal Board is actively co-operating. Exploratory boreholes which are being drilled near the old Bayton Colliery about 9 miles from Kidderminster indicate a faulted geological formation in which the depth of coal varies from 200 to 600 ft. and on which tests should yield useful information. The intention is to drill some six (6 in.) boreholes in a circle down to the coal, the holes being cased and grouted, and the coal lying between them ignited and gasified with the aid of air blowers and compressors. Scientific observations will then be made day and night on the quality of the gas produced and other relevant factors. This procedure may be repeated several times on coal at different depths.

Official Inauguration of

New Verticals at Burton-on-Trent

NEW Woodall-Duckham vertical retorts with a capacity of 2 mill. cu.ft. per day were officially inaugurated at Burton-on-Trent recently. The scheme had been planned when the undertaking belonged to the Corporation, and the ceremony was attended by the Mayor (Councillor M. M. Mercer), the Mayoress (his daughter-in-law, Mrs. Ann M. Mercer), and a number of leading industrialists, all of whom were welcomed by Mr. H. F. H. Jones, Chairman of the East Midlands Gas Board.

The inaugural ceremony took place on the river Trent side of the retorts, where a loaded coal truck was awaiting discharge into the hoppers below. The Mayor was invited by the Chairman of the Board to start up the coal tippling machine. Having done this, the Mayor said he had great pleasure in inaugurating the new installation and thanked the Chairman of the Board for the kind invitation to himself as Mayor and to other members of the Borough Council, to take part in the ceremony, which thus marked their old association with the gasworks.

Mr. Jones, in reply, said the plant was ordered by the Burton Corporation before vesting day, when the East Midlands Board had the privilege of taking over the supply of gas to the town. He drew attention to the flower beds, which had been prepared by voluntary effort by some of the men working for the undertaking, and he thought they would agree that the introduction of a little colour around the new plant showed that they were interested and proud of the development.

Right up to Date

Alderman J. Jones, J.P., Vice-Chairman of the former Gas Committee, said the vertical retort installation was a splendid and right up-to-date one in a fine undertaking. 'We hope that those responsible for the manufacture of gas will let their light so shine before the Burton public, that they will see the good work and the wonderful activity of the East Midlands Gas Board. We are happy to be here, and sincerely hope that the new installation will fulfil all that is expected of it, as we are sure it will, for the benefit of the town.'

Presiding at the luncheon, **Mr. H. F. H. Jones** welcomed as guests a number of members of the Borough Council, the Town Clerk (Mr. H. Bailey Chapman) and the Borough Treasurer (Mr. A. Broughton). The contractors were represented by Mr. F. Poyson (Director) and Messrs. P. G. Wilson and F. C. Wagg. In addition the following were among the officials of the Board present at both functions: Mr. A. Gwynne Davis, M.B.E. (Secretary), Mr. A. W. Elliott (Notts. and Derby Divisional Engineer), Mr. H. B. Taylor (Sub-Divisional Manager, Nottingham), Mr. C. C. Wood (General Manager, Leicester and Northampton Division), Mr. A. Facer (Sub-Divisional Manager, Derby), Mr. R. M. Wilkinson, M.C. (Sub-Divisional Manager, Chesterfield), and Mr. G. A. Howard (Chief Accountant). Mr. R. N. Quirk, Under Secretary, Ministry of Fuel and Power, was also present in the morning and inspected the installation, but could not remain for lunch.

Proposing the toast of the town of Burton, **Mr. K. L. Pearce** said the present year was a landmark in the history of Burton, in that it was the 50th anniversary of the granting to it of county borough status. Apart from its fame as the chief brewing centre of the country—largely due to the quality of its artesian wells and not to the River Trent—the town's activities were many and varied; and the setting up of a technical college for training in engineering and so forth interpreted the desire of the Borough Council to widen their scope and encourage other trades to settle in the district. One could clearly find a barometer of the progress and development of the town in the expansion of the gas undertaking, which obviously marked the prosperity and industrial activity that was proceeding within its borders. The expanding output of gas over recent years was a clear indication of this steady progress, which they all hoped would continue, he added.

In response the **Mayor** said the installation of the new vertical retorts was first envisaged before the last war broke out, but the outbreak of hostilities prevented the work from being proceeded with. Domestic consumers and many industrial concerns in the town relied upon gas in varying degrees and ways, and it was of vital importance to the prosperity of the town that an adequate supply of gas should be maintained. They could regard the official opening of the installation as constituting a red letter day in the progress of the gas undertaking locally; and they trusted that the bringing of the plant into operation would result not only in increased efficiency in the supply of gas, but also that there would following that most desirable of things at the present time—a reduction in the price to the consumer.

It was about 20 years ago, Councillor Mercer went on, that the father of the present Chairman, Mr. Henry Jones, was appointed as an expert to report on the Burton gas undertaking, and what was particularly interesting was that in consequence of one of his recommendations a distribution manager was appointed. That appointment went to Mr. C. H. Underhill, the local chief of the undertaking today.

Good Work Never Wasted

Mr. A. Colgate, M.P., proposed the toast of the East Midlands Gas Board, coupled with the name of the Chairman. Whatever changes were in store, he said, these would not affect or detract from the good work which had been done, for good work was never wasted, and he was one of those old fashioned optimists who thought virtue never went unrewarded.

In acknowledgment **Mr. H. F. H. Jones** said he was glad to welcome members of the old Gas Committee, because the Board considered it a good thing to keep in touch with local authorities and the trade representatives of the town. Finally he referred to the Mayor's remark about his father, which he could vouch for; and said he was glad to say that Mr. C. H. Underhill now occupied a more important position than he held before vesting day. He was in charge of the undertaking and the group which included Swadlincote and Melbourne; and as showing his interest in Burton, Mr. Underhill had written a book on its history which he could commend to anyone desiring to know more about that ancient town.

Senior Gas Officers' Joint Council

At a meeting between representatives of the Gas Council, the Gas Officers' Guild, and the National Association of Local Government Officers on May 30 at Gas Industry House, an agreement under Section 57 of the Gas Act, 1948, was made, establishing the Senior Gas Officers' Joint Council for officers whose salaries are above those covered by the National Joint Council for Gas Staffs or the National Joint Standing Committee on Intermediate Grades.

The principal object is 'to settle by negotiation terms and conditions of service for officers, except in respect of such officers or such categories of officers in the employ of such area gas boards (or the Gas Council considered as an employer) as may be agreed by the Joint Council. Failing agreement reference shall be made at the request of the Gas Council or the organisations to a ballot of such officers or such categories of officers, such ballot to be held under conditions to be agreed by the Joint Council, the majority result of which ballot shall be binding on the Joint Council.'

The constitution provides *inter alia* for the settlement of differences by arbitration, and for action on matters affecting the interests of such officers.

Yorkshire Juniors at Jenkins

MEMORABLE VISIT TO RETFORD

THE Yorkshire Junior Gas Association travelled to Retford on May 22 to visit the Beehive works of W. J. Jenkins and Co., Ltd. As it was the first visit the Association had made to the firm members turned out in full force, and a most instructive afternoon was spent touring the well laid out works of one of the most progressive engineering firms in the gas industry.

The visit was a memorable one too, not only from the Yorkshire Juniors' point of view but also for Messrs. Jenkins, because of the fact that the visit was supported by the Chairman and Deputy Chairman of the North Eastern Gas Board, Dr. R. S. Edwards and Mr. G. E. Currier, O.B.E., and also the Chairman and Deputy Chairman of the East Midlands Gas Board, Mr. H. F. H. Jones and Mr. Sydney Smith. Mr. E. H. Harman, General Manager, Sheffield and Rotherham Division of the East Midlands Gas Board, was also present.

Early Days

The Company was founded in 1896 when the late Mr. W. J. Jenkins, Chief Engineer of West's Gas Improvement Co., bought a small engineering works in Retford, which had been in existence for many years as millwrights. Very little of the old works now remain, and those buildings that are left will be demolished to make room for further extensions. Retford was selected on account of its excellent position at the intersection of the old Great Northern and the Manchester, Sheffield, and Lincolnshire Railways, and its position on the Great North Road.

Initially, the business of the Company was horizontal retort benchwork and mechanical handling plant, and this led to the acquisition of the patents of the D.B. stoking machine, the design of which was a considerable improvement on all existing types of charging machines, providing means of putting the heaviest charges into 'through' horizontal retorts. The response by the gas industry was immediate, and altogether some hundreds of these machines have been supplied to works all over the world. Machines installed by Jenkins in 1905 and 1906 are still in operation, and orders for spares are dealt with readily from the accurate records which have been carefully preserved.

Parallel to the introduction of the charging and discharging machines, came the call for the mechanical handling of coke, and this was answered by the De Brouwer conveyor. This simple design of conveyor has withstood the test of time, and many thousands of feet are made every year.

Contracts for Horizontal and inclined retort benches and complete coal and coke handling equipment became the established business of Jenkins, and the industry suffered a loss when Mr. Jenkins died in May, 1911. His progressive outlook has, however, always been maintained, and the activities of the Company were considerably widened by the introduction in 1931 of the intermittent vertical chamber oven system of carbonisation. Contracts in hand at the present time total a gas-making capacity of 30 mill. cu.ft. per day.

A Warm Welcome

On arrival at Beehive works the members were welcomed by Mr. G. L. Ford, Chairman of W. J. Jenkins, Mr. R. M. Goodman, Managing Director, Mr. W. Morland Fox, Technical and Projects Director, Councillor B. Pollard, works Director, Mr. R. W. Crowther, Technical Director, and Mr. M. W. Baker.

Prior to the commencement of the tour of the works, members were entertained at luncheon in a large marquee situated in delightful surroundings. In extending a hearty welcome after lunch on behalf of Messrs. Jenkins, Mr. G. L. Ford, Chairman, said he hoped they would find a lot to interest them in their tour round the works. He referred especially to a Jenkins discharging machine which they would see, and which would be dismantled that afternoon before being despatched to Filey where it would be in operation in a few days' time.

Continuing Mr. Ford said that they had an apprenticeship system in operation for the training of skilled craftsmen for both the drawing office and the works. At the present time there were upwards of 90 boys engaged under this training scheme to whom every facility was given for attending day technical colleges at the Company's expense. Every employee had excellent prospects for advancement by means of their ability. One of their employees Mr. H. Fishburn was elected a Director of the Company at the last Board meeting. Mr. Ford also gave particulars of the profit sharing scheme whereby everyone was a recipient of a share in the annual profits of the Company. The bonus for last year worked out at about 6 weeks' basic wages for the year. This was not

Mr. H. F. H. Jones (Chairman of the East Midlands Gas Board) and Mr. R. M. Goodman (Managing Director of W. J. Jenkins & Co., Ltd.) at tea.

given as an incentive, but as something every employee had earned.

Mr. S. Davis (President of Yorkshire Juniors) expressed thanks on behalf of the members for the warm welcome they had received and for the hospitality.

Dr. Edwards briefly addressed those present. They at the N.E. Gas Board, and he was sure he could speak for the East Midlands Board, also believed that the Juniors' activities were a good thing for industry. The more factories they went to the more they learned and mutual co-operation such as this was highly desirable.

Mr. G. E. Currier (Deputy Chairman of the North Eastern Gas Board) and Mr. W. Morland Fox (Technical and Projects Director of W. J. Jenkins & Co., Ltd.)

On completing their tour of the works, the members returned to the marquee for tea, after which Mr. H. F. H. Jones, Chairman, East Midlands Gas Board, said how much he and Mr. Sydney Smith, Deputy Chairman, and Mr. Harman had enjoyed their visit.

Mr. Morland Fox then addressed the members. His remarks will be reported subsequently in the *Journal*.

Mr. Dearnley, Vice-President, moved a vote of thanks to Mr. Fox for his address.

Ayr Town Council has decided to appeal against the valuation of the Gas Board's undertakings within the burgh for the year 1950-51, as proposed by the Assessor of Public Undertakings (Scotland). Proposed valuation is: Works and pipes, gross annual value, £5,063; net annual and rateable value, £4,050. After an appeal last year the valuation was fixed at £18,435 gross and £14,748 rateable. Proposed new figures would result in a loss of rates to the burgh of approximately £7,000.

The Metropolitan Branch of the Engineers' Guild held its first dinner and dance at the Café Royal, London, on May 18, Mr. C. W. N. McGowan being in the chair. The toast to the Branch was proposed by Mr. H. F. Buxton, Electrical Engineer to the South Eastern Gas Board. Mr. Buxton said that one of the aims of the Guild was to obtain representation of the engineering profession at the highest levels of planning, control, and direction, and he added that the Metropolitan Branch was the largest and most active of all the branches.

IN PARLIAMENT

Gas Co-partnership

Government Defeat in the Lords

THERE was a Government defeat in the House of Lords on May 29 when the following motion by Lord Cecil of Chelwood was carried by 54 votes to 24: 'That this House deeply regrets that owing to the nationalisation of the gas industry, the co-partnership scheme, which has operated in the South Metropolitan Gas Company with great success for upwards of 60 years, has come to an end.'

Lord Cecil said the South Metropolitan Gas Company had a remarkable history. Some 60 years ago it was torn with violent industrial disputes, culminating in a strike, which caused considerable anxiety. Mr. George Livesey proposed as a remedy for this state of things a system of profit-sharing, which would give the workmen, in addition to their wages, a share in the profits of the business. After some controversy that proposal was accepted in 1889, and on that basis a regular structure of co-partnership was built up. Since that time the relations between employers and employed had been excellent.

Quoting from the *Segas Journal*, Lord Cecil said the broad principles of co-partnership and its ideas were adopted by a large number of gas undertakings, and it was true to say that the foundation thus laid was the basis for the good labour relations which had played such an important part in the progress and prosperity of the gas industry. That was a testimony to the system which had now been destroyed by what he must call the doctrinaire policy of the Government. It was right to add that the Government seemed to have felt some compunction for what they had done or were doing. It had been arranged that the co-partners should receive, as an addition to their wages for 15 years, an annual sum equivalent to the bonus paid to them in the last year of the co-partnership scheme. That might be some monetary satisfaction to the persons concerned, but it did not touch the real evil of the change.

Lord Chorley said the conditions described were not characteristic of the gas industry over the whole country. There were profit-sharing schemes in a substantial number of gas concerns, notably the largest of them all—the Gas Light and Coke Company—but the South Metropolitan and the South Suburban were the only two in which there was co-partnership in the sense that the workers were entitled to nominate a certain proportion of directors. On the socialisation of the gas industry it became impossible to carry on schemes of this sort in the way they had been operated in the past.

The Marquess of Salisbury, supporting the motion, said he regarded the Government action both as retrograde and as showing up the illogical use—to use no stronger word—of their whole political position. The scheme of co-partnership referred to in the resolution was a model for other undertakings of the same character, and had proved an outstanding success.

Viscount Samuel said Lord Chorley had suggested that all similar schemes would have to disappear. With regard to nationalised industries, of course, no question arose as to the distribution of profits, for there were no profits; they were principally concerned with how to cover losses.

Lord Macdonald of Gwaenysgor, replying to the debate, said consultations had resulted in a definite alternative scheme being put forward. All the benefits under a co-partnership scheme were referred to in the agreement. In so far as co-partnership committees acted as negotiatiing bodies on wages and conditions of service, the work would be done, first by the National and Area Joint Industrial Councils and, secondly, by the National and Area Joint Council for Gas Staffs. Both these bodies had been set up. 'We felt that co-partnership schemes were an attempt to prolong the life of capitalism in its rawest form,' he continued, 'improving it, bit by bit, in order to remove the resentment of the worker. That has been our feeling. But remember that some of us are speaking from rather bitter experience.'

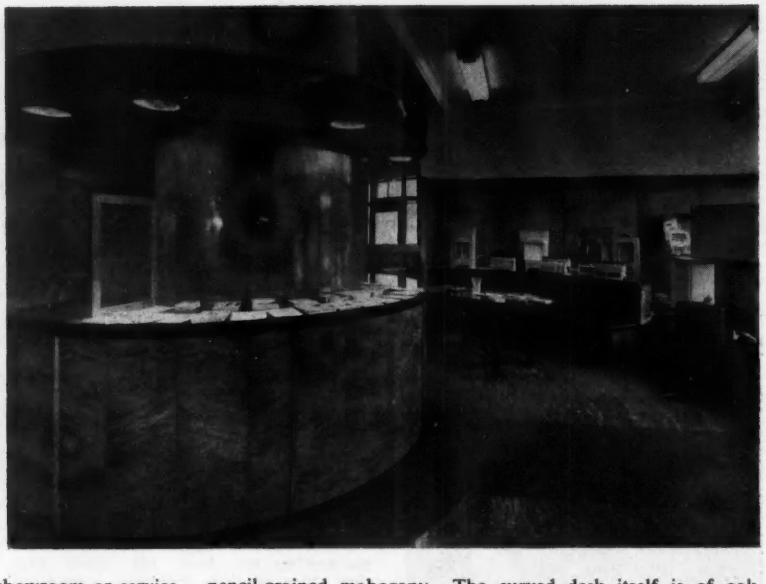
Whereas there was only one co-partnership committee for the whole of the South Metropolitan Gas Company, there would be one committee for each gasworks, and separate committees for men working on distribution districts under the new arrangement. This would probably mean more than a dozen committees in place of the one formerly existing. The result, he believed, would be more intimate and detailed provision for joint consultation than there was under the old set-up and, if given a fair chance, the scheme would work just as well as the old set-up and the worker in the industry would be just as well off.

Cost of Smoke Pollution

THE extra 3 mill. tons of coal for which the Prime Minister appealed a few months ago, and which was produced by the coal industry, was practically the same as the weight of coal that would be wasted as smoke during the present year, said Mr. Arnold Marsh (General Secretary of the National Smoke Abatement Society) when he addressed delegates to the annual conference of the Society's Scottish division at Inverness on May 25.

Discussing the need for a national fuel policy in which the social costs of different kinds of fuel usage would be given full consideration, he said that of these social costs the pollution of the atmosphere was the most serious. A bold and imaginative campaign for fuel education was needed.

Striking layout of the accounts section on the ground floor.



NEW GAS SHOWROOMS AT ILKLEY

Previous to the opening of these attractive premises consumers had to pay their accounts at the gasworks, ten minutes walk away

ILKLEY has not up till now had a gas showroom or service centre, and consumers were obliged to go to the Leeds Road Gasworks to pay their accounts. In this fine new building —the ground floor of which is illustrated—they will find all facilities. The accounts section, shown here, is of a striking semi-circular shape and is flanked by appliance displays in front of which are green leather seats. The section is constructed of weathered veneer sycamore topped by a strip of pencil-grained mahogany. The curved desk itself is of oak. On the first floor is the main showroom together with a commodious demonstration room where cookery lectures and other functions will be held.

These new premises are certainly an asset to the town, and the North Eastern Gas Board are to be commended on providing not only a much needed service centre but premises which greatly enhance the frontage of Church Street, Ilkley.

South Western Gas Tariffs

NEW gas tariffs which, as reported in the *Journal* of April 25 (p. 238), were approved at last meeting of the Consultative Council, will come into operation throughout the area of the South Western Gas Board from June 1. Allowing for the increase in the price of coke, the Board has to find at least another £1,250,000 per annum to fulfil its statutory obligation to pay its way. The new tariffs are estimated to produce an additional £974,000 in a full year and, allowing for the time lag between the increases in costs and the tariffs coming into operation, the Board is passing on only just over £800,000 of these increases to its consumers. The Board will itself endeavour to carry the burden of the remaining £425,000 of the increases by savings brought about by increased efficiency in working and sales which are already beginning to produce good results since the Board started functioning just over two years ago.

Mr. C. H. Chester, Chairman of the Board, in a Press statement, says a further effort has been made to reduce considerably the wide discrepancies in gas prices throughout the area, for which there was little or no justification, and it is one of the principles of the tariffs to fix the same price for gas in districts where conditions of the production and distribution of gas are reasonably comparable. Different charges for meters in the area obviously could no longer be justified and the tariffs provide standard charges throughout the area for all types of meter—ordinary and prepayment with or without a gas cooker and meters used for non-domestic purposes.

In the past, many prepayment consumers, who represent the majority of the Board's consumers, have paid as much as £1 per quarter in prepayment meter supplemental charges and even more in some districts. Under the new tariffs, the supplemental charge can never be more than 3s. 9d. per quarter for a prepayment meter or 10s. per quarter where both a prepayment meter and a high grade cooker are supplied, with a reduction for older type cookers.

Although the tariffs in most districts involve price increases for the first block of consumption, the Board has made all the tariffs fully promotional so that as consumption increases within the various blocks so the price for gas sharply falls. The ceiling price of 24d. per therm in some districts has not been altered and will carry with it the reductions in price according to consumptions in the various blocks.

The needs of certain special non-domestic consumers, such as bakers, caterers, fish fryers, hospitals, nursing homes, schools, hotels, and boarding houses have been met by offering a two-part tariff which consumers can adopt if their requirements make it more advantageous for them to have the two-part tariff.

The Board, says Mr. Chester, has designed the tariffs to encourage the use of gas for space heating, water heating, and cooking. The needs of every type of consumer have been reasonably catered for in the new tariffs and by the provision of modern gas consuming equipment on uniform terms.

'Nor Reps' Golf Circle

The recently formed 'Nor-Reps' Golf Circle was defeated in a match against members of the Leeds Group of the North Eastern Gas Board when the inaugural outing took place over the Scarcroft Golf Course, near Leeds.

The Circle, consisting of a number of gas trade representatives, hopes to arrange evening games with members of the various Groups in the North Eastern area. The next outing has been arranged for June 13, when the Circle will play members of the York, Harrogate Group over Pannal Golf Course, Harrogate.

French State Gas Stocks.—Under the Anglo-French Agreement on compensation for U.K. holders of French nationalised gas and electricity securities, the date by which the declaration of acceptance of the terms of settlement must be made has been extended from May 31 to September 10. This information was given on May 24 by the Bank of England, which also stated that a further number of companies had been nationalised.

Wales Juniors' Annual Meeting

CLOSURE of many gasworks was forecast by Mr. C. L. Singleton, retiring President, at the annual meeting of the Wales and Monmouthshire Junior Gas Association at Chepstow on April 24. With the nationalisation of gas, he submitted, it was evident that many units, in being on May 1, 1949, would be closed. Bulk supplies would be taken from adjoining works, from large concentrated gasworks, or coke ovens.

Bulk supplies would give adequate quantities of gas but would not cure inadequate storage, bad distribution systems, or much of the inferior gas fitting found in consumers' premises.

'The storage of gas in future,' he said, 'will be bound up largely with the capital cost of the holder. On this will depend whether or not low or high pressure storage should be installed. There is a wide difference of opinion on this subject, but with steel and labour at present day prices it makes a low pressure holder a high charge on the cost of gas, since the rate of depreciation, insurance, maintenance, etc., all bear correspondingly high charges.'

Turning to the sales of gas, Mr. Singleton felt that while much had been done to improve the meter and to make it more presentable when fixed in a conspicuous position, more would have to be done.

Although smaller cases had become standard, some thought might be given in future to still smaller meters and perhaps without the leather diaphragms upon which so much depended in a meter. The direct reading index should become a standard fitment on all meters. The prepaid scale, if it were to be incorporated at all, should enable the consumer to tell the amount of gas prepaid. Architects and builders should be asked to co-operate in finding more suitable places in houses for gas meters; far too many in the past had been fixed under draining boards or in positions too near the heat from the gas cooker.

Lack of Fitters

The lack of gas fitters was apparent in most undertakings today, but suitable apprentices with the necessary educational qualifications could be found. Mr. Singleton submitted that it might be to the advantage of both the undertakings and the area boards if the latter were to hold refresher courses at which improvements in appliances could be freely discussed.

The work of the gas fitters—and for that matter other members of the staff of the undertaking—might be made easier if the gas industry had bylaws regarding the installation of gas appliances similar to those used by water undertaking. How often the report was made that a certain appliance was not giving satisfaction, sometimes due to undersized supply pipes or to the fact that the meter was of inadequate capacity.

Mr. Singleton ended with reference to the small undertaking: It may remain small in many ways and may, in some instances, exceed efficiency figures of the larger undertakings although this is not the usual case. It should become practice for the smaller undertaking to go all out to emulate the figures of the larger undertaking, especially in therms sold per consumer. Apathy must not be allowed to exist. The small works has always served a very important part but the mottto should be 'The best is never good enough.'

An Outstanding Feature

In his report, Mr. S. G. Meade (Newport), Secretary, said the outstanding feature of the session had been the formation of the North Wales Section which meant an appreciable increase in the Association's membership. Membership of this Section was now 70. Eighty-two new members had been admitted into the Association making total membership 213.

New Officers

Mr. Meade was elected President and assumes office in October, the beginning of the new session. Other officers appointed were:

Senior Vice-President, H. Buckley (Pontypool).
Treasurer, C. E. Banham (Cardiff), re-elected.
Secretary, R. Shepherd (Neath).
Junior Vice-President, R. Jones (Chairman of the North Wales Section).
Auditors, W. E. Crowley (Wales Gas Board) and P. Noall (Cardiff).
Librarian, J. Newnham (Pontypool).
Council: A. D. Mason (Wales Gas Board), D. Wilkins (Swansea), and T. E. Tyrrell (Port Talbot).

Northern Juniors

A MEETING of the Northern Junior Gas Association was held at the Redheugh works of the Newcastle Division of the Northern Gas Board on May 11.

The meeting was opened by the President of the Association, Mr. G. W. Perks, who introduced Mr. J. R. Bradshaw, J.P., Deputy Chairman of the Board.

In the course of an address to the Association Mr. Bradshaw said that the Board started off with the firm conviction that there should not be a large top-heavy central organisation. The slogan at headquarters was 'Let the managers manage,' and this idea had been acted upon. They would admit, of course, that it would be improper to make a fetish of autonomy for autonomy's sake alone, and that it would be impossible to give ten managers *carte blanche* to do as they liked without reference either to headquarters or their neighbours' affairs. There must be conference, discussion, ventilation of ideas and co-ordination between divisions and headquarters.

Similarly, and at the next level, it had been made clear to district general managers that, just as they had been given all possible freedom from the detailed mandate of the Board, so must they in turn pass on the same freedom to their unit managers. At Board level they had endeavoured to maintain as much personal contact as possible with the managers, staff, and employees, believing in the immense value of such personal contacts. The question of personal contact and relationships was a very important one. It was a problem which affected industry in general, and had really nothing, or at any rate very little, to do with nationalisation *per se*. It was merely a question of size of operation. It would be a real loss to the Board if the men in even the least significant occupations felt that they were out of touch with the management, and were now working for some vague impersonal Board situated many miles away. This responsibility could, of course, only fall upon the divisional general managers and their unit managers and foremen.

The Right Direction

A step in the right direction was shortly to be taken by the setting up of joint consultative committees in all the divisions, where the managers would meet constitutionally appointed bodies of staff and workmen at regular intervals to consider welfare, health, safety, efficiency, and the like—in fact all subjects which did not encroach on the work of the national and area joint councils. It was hoped that all concerned would do all in their power to make these committees a success, to the advantage of management, men, and consumers.

It might be well to consider what changes had come about through nationalisation from the consumer's point of view. He thought it was fair to say that the consumer had noticed little change if he ignored the question of price—which he could not—with the exception of a number of small undertakings where they could rightly claim that the supply was more constant and the quality much improved compared with the conditions which obtained

when they were working in isolation from their larger neighbours.

Regarding the prospects of young men in the industry as it now existed under nationalisation, the Gas Council and its committees and the area boards had given much thought to the training and education of young men so that they might gain the knowledge and experience which would equip them for succeeding to the higher appointments of responsibility and direction, as vacancies inevitably occurred through retirements and the passage of time. There was ample opportunity for those who were willing to make the effort to receive as full and complete a training and education as could be devised. Facilities were given for youths to attend day and evening classes without cost to the students under certain safeguards which could only be described as 'fair enough,' correspondence courses were approved where isolated conditions denied to a student the advantages of personal tuition, and in higher education the Area Board would facilitate attendance at universities where students arose who would benefit from such facilities. In his view, there never was more scope and opportunity for the young men to advance to positions of responsibility and corresponding remuneration, but success would not be achieved without patient and dogged application.

Circumstances had arisen in industry in general, and in the gas industry in particular, which made it vital to gear up their operations to the highest possible degree of technical and administrative efficiency. With the scarcity of raw materials, and what seemed to be the unending rising spiral of costs of labour, and all the materials they used, it behoved them all to spare no effort to improve efficiency in manufacture, distribution, and administration. The aspect of the rising price of gas was particularly disconcerting because their increasing costs were for the most part uncontrollable. No stone was left unturned at Board level, and at the monthly divisional meetings, to get as near to ideal efficiency and economy as possible. Each and every project for renewals of plant, for the laying down of new plant both on works and on the district was scrutinised with the greatest care in view of the very high cost of repairs and new work. With the exception of those cases where a renewal or a new item of plant was necessary to maintain the supply to the consumer or where plant had become worn out or dangerous, expenditure was only approved where it could be proved to show a definite saving. It might be that some of their long term schemes might have to be postponed for the time being, quite apart from the physical difficulty of proceeding with them at once through shortage of materials. All this was very disappointing to the Board and the managers, as indeed it must be to all of them.

Mr. Bradshaw remarked that, on their shoulders, as Juniors, in common with all the other Junior Associations, would fall the burden in due course, and he had no doubt that, judging from their efforts during the last two strenuous years in particular, they would bear it worthily.

A vote of thanks to Mr. Bradshaw was proposed by Mr. J. McManus (Newcastle Division), and a vote of thanks to Mr. J. E. White (General Manager of the Division) was proposed by Mr. Stanley Jones (Middlesbrough) for the hospitality and facilities provided for the visit.

There followed a visit to the Redheugh works and a detailed examination was made of the new 4½ mill. cu.ft. per day C.W.G. plant designed and constructed by the Power Gas Corporation, Ltd., the 12-tons per day sulphate of ammonia plant constructed by Geo. Royston & Sons, Ltd., Barnsley, and the installation of overhead mild steel purifiers erected by the Oxley Engineering Co., Ltd., Leeds.

COMPANY NEWS

BRITISH OXYGEN

The sixty-fifth annual general meeting of The British Oxygen Co., Ltd., was held on May 10 at Grosvenor House, Park Lane, London, W.

Mr. J. S. Hutchison, the chairman, who presided, said: I am very pleased to tell you that the year 1950 was a record year at home and overseas. New sales and production totals were achieved, our development programmes made excellent progress and there was a substantial improvement in earnings over previous levels.

The consolidated trading profits are increased by £961,562 at £4,225,584. The allocation for depreciation is increased by £245,596 so that after depreciation the increase in profit is £715,966. The net disposable balance of profit for the year of £1,097,998 shows an increase of £192,951.

The directors recommend a final dividend of 12% less income tax, payable on the new total of ordinary stock, which at £262,264 requires £33,303 more than last year. We are placing £150,000 to general reserve, against a net £200,000 to reserves last year, and adding £145,819, against £4,151, to the balance of undistributed profit carried forward, raising it to £346,282. In addition, the profit retained by our associated companies is £67,980 higher at £319,899.

The successful issue of additional shares to ordinary stockholders on favourable terms, and the issue of the £4 mill. of 3¼% unsecured loan stock, 1953-55, at 99½% in November last, provided the company with total additional resources of £6,408,370. The bank overdraft which had reached a level of approximately £3 mill. was eliminated.

Quasi-Arc, with its steadily expanding business in electrodes and electric welding machines and appliances, had a very satisfactory year in output and in the general development of its business, but profits were unfortunately limited by rising costs.

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The Directors announce another very good year's trading. After reserving £153,522 for taxation, a sum which taken into account the adjustment of last year's reserve, there is a profit of £136,197 to deal with, a figure which is very nearly double the comparative figure of profit last year. After adding the balance brought forward from 1949, there is the sum of £171,683 available for distribution. After allowing for income tax, ordinary depreciation, preference dividend, and Directors' fees, it is recommended that the profit be dealt with as follows: In payment of a final dividend of 11¼% on the ordinary shares, including those issued in March as a bonus issue. In September, an interim dividend of 7½% was paid so that this rate means an annual rate of 17½% on the increased holding against an annual rate of 17½% on the lower holding last year. The sum of £80,000 will be placed to the general reserves of the Company and its subsidiary. This means that for every £1 ordinary share, there is now over £2 in general reserve. It is proposed to increase the dividend equalisation reserve by £25,000. £10,000 of this is required to bring it to the equivalent of two years dividend, while the balance of £15,000 is reserved against the contingent liability of the higher rate of profits tax attaching to the undistributed profits of the Company.

IMPERIAL CONTINENTAL

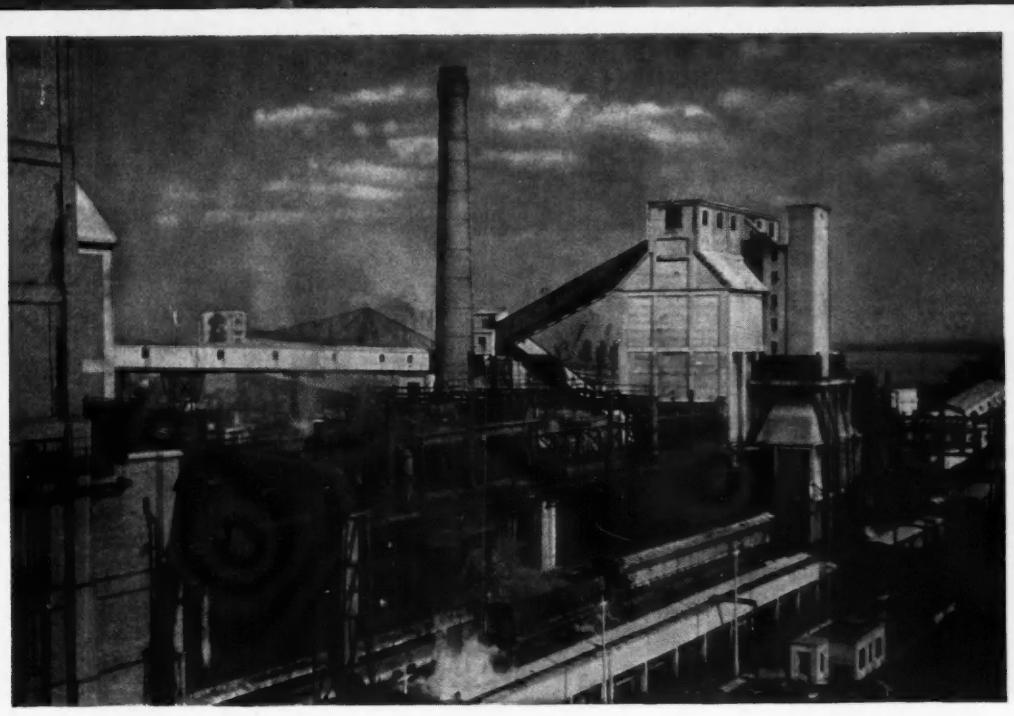
The Board of the Imperial Continental Gas Association have resolved, that for the year ended March 31, 1951, subject to the approval of the proprietors and the verification of the accounts by the auditors, an ordinary dividend of 9% (actual) less income tax, be paid on the capital stock. Profit, after all charges including taxation, £271,478 (£233,951); U.K. taxation charged in arriving at profit, £431,837 (£342,093); dividend declared: ordinary 9% (less tax), £264,600 (7½%; £231,000); addition to carry-forward, £6,878 (£2,951).

In regard to the French compensation monies, there is nothing to add to the circular letter which was sent to the stockholders on April 12.

The general meeting will be held at Winchester House, Old Broad Street, London, E.C.2, on July 6, at noon.

STEWARTS & LLOYDS

Stewarts and Lloyds, Ltd., are paying a final dividend of 6½% on the £8,172,720 deferred stock, making 12½%, less tax, for 1950. Distribution for 1949 consisted of a single payment of 12½%. The liaison deferred receive a dividend at the same rate relatively as on the deferred stock. In accordance with the Iron and Steel Act, further dividends are also payable at the rate of 12½% per annum on the deferred stock, and at the same rate relatively on the liaison deferred, for the period from January 1 to February 14. The dividends are payable May 29 to stockholders registered February 14.



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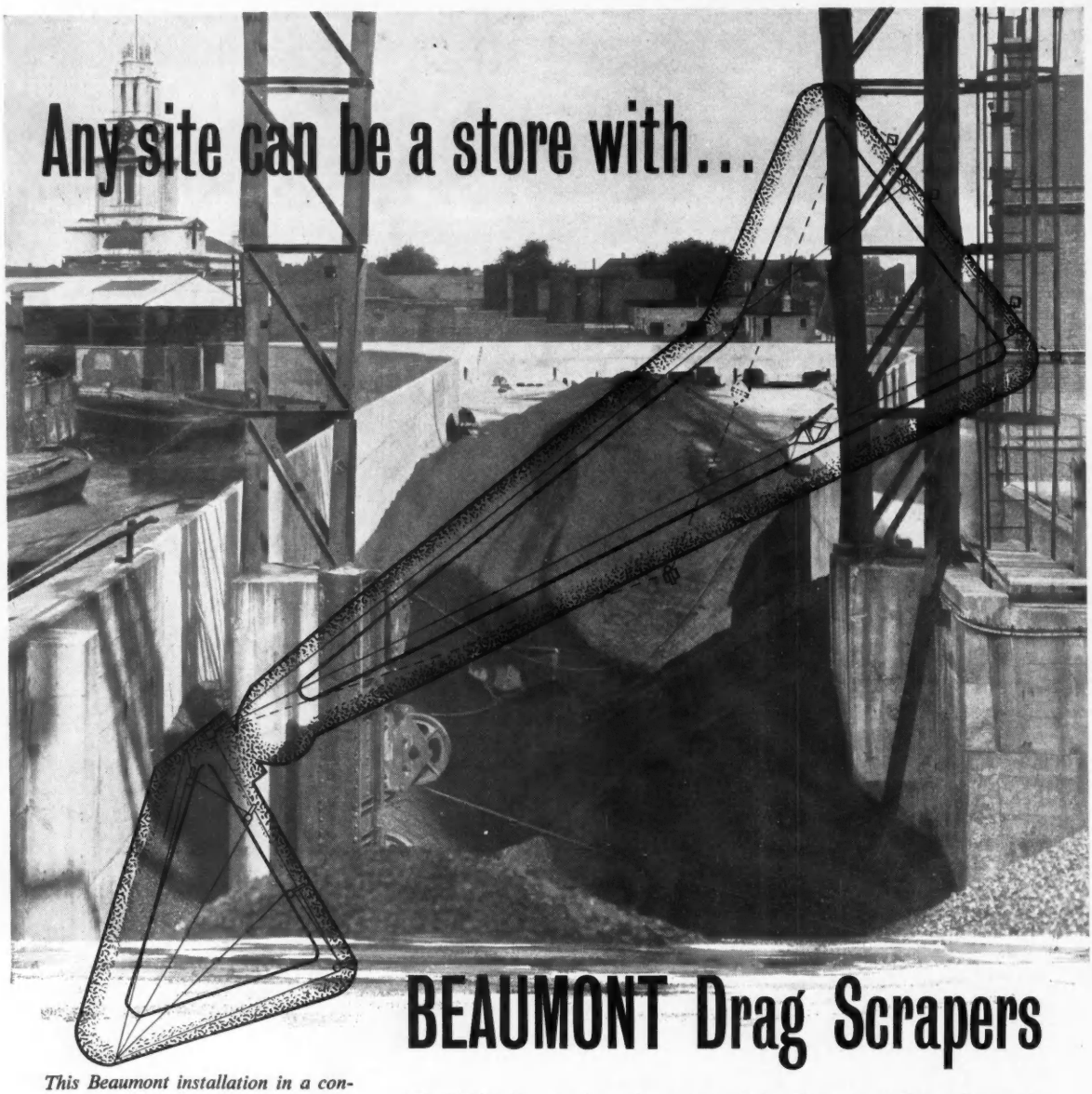

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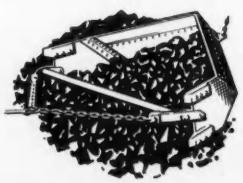

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Consultation With Local Authorities

Tariff Problems in the North West

DETERMINATION to make adequate arrangements for dealing with the coke situation was expressed in a communication received by the North Western Gas Consulative Council from the North Western Gas Board at its meeting in Manchester on May 24, presided over by Councillor C. E. P. Stott, J.P. The letter from the Board stated that it had appointed a Coke Policy Sub-Committee to consider and make recommendations which would secure, as far as possible, that available supplies of coke were properly shared throughout next winter.

The Board would continue to encourage the installation of efficient coke burning appliances, for it believed that this was not only in the interests of the gas industry, but of the national economy. The Board could not guarantee full supplies of coke at this period to all, but was anxious to take steps to safeguard supplies to established coke consumers, and to those who had installed efficient coke burning appliances.

Catering Tariffs

A letter was received from Mr. L. Griffiths Harris, Secretary of the Caterers' Association of Great Britain asking for special tariffs to be applied to hoteliers and caterers. It was the hope of the Association that some sort of uniformity might be established, naturally with some allowances for differences caused by local conditions. The hotel and catering industry was the fifth largest in the country, and it was claimed that it could ask for a special rate. The hotel and catering industry was making a valuable contribution to the tourist trade of Great Britain, its total receipts being £23,500,000, the total expenditure of U.S. and Canadian tourists in Britain being £22 mill., and the total N. American dollar earnings of the hotel and catering industry being £10 mill.

The Chairman said the letter had been forwarded to the Board for consideration, and a reply had been received to the effect that it was hoped in the not too distant future to achieve a standard tariff to operate throughout the Board's area.

The first step had been taken by tackling the problem firstly on a group basis. There were 17 groups of undertakings in the area, and standard group tariffs would shortly be operating within eight groups. In a further six groups group blocks would operate with differentials in prices at certain undertakings within the groups. In the remaining three groups it had not been possible, at this stage, to introduce a group tariff, but there had been a measure of simplification, and the tariffs followed a similar pattern.

The point made by the Association that a catering block rate should be established was one with which the Board would not be in agreement, for they were of the opinion that the policy of unification could not envisage special rates for special purposes. Their view was that special circumstances only could justify special rates. Special circumstances, it was thought, could only arise by reason of exceptional incidence of demand, for a properly designed block rate should provide the relief that could reasonably be asked for.

There had been correspondence also with the Southport Bakers' Association, many of whose members had recently had bakers' ovens converted to the use of gas. They were concerned at the recently announced advances. As the bakers who used gas were unable to assess the amount of the proposed increase they asked for a full list.

Details of the tariffs which would operate throughout the Liverpool area (including Southport) were forwarded.

Conference with Local Authorities

The meeting of the Council was followed by a meeting of local authority representatives, approximately 200 in number, together with representatives of other interests, convened by the Council to hear the Chairman of the Board, Mr. D. P. Welman, speak on the first annual report of the Board.

Councillor Stott said that the Consultative Council considered it would be an excellent device if arrangements could be made for local authorities to have an opportunity of meeting representatives of the Board to examine the first year's working under nationalisation. There was no statutory obligation to do so, and, as a matter of fact, no other meeting of such a character had taken place anywhere within the British Isles. It was an effort on the part of the Board and the Consultative Council to establish as wide a contact with the public they served as was possible.

Mr. D. P. Welman, Chairman of Board, said neither the Board nor the Chairman had the slightest interest in political criticism. They were interested to produce gas at the lowest possible price and to give the best service to the consumer. They refused to be concerned with any political aspects of nationalisation.

He was aware that many people feared an organisation of the magnitude of the Board, and it should be remembered that the North Western Gas Board represented something like one-fourth of the total output of the gas industry of the country. It served the most congested area from the point of view of population, with the exception of London, and dealt with the most highly industrialised part of the country. Possibly in the immediate years to come it would be a part of the country of the greatest moment to the future of the nation.

The Gas Act provided for autonomy for each area board within its own area. Care must be taken that that autonomy was not used unwisely; that they did not fail to realise that between areas there was still a vital necessity for collaboration and co-operation, just as there was between individual areas. Autonomy must be guarded jealously, not used so as to prevent it being flexible enough, but looking at the industry as a part of the whole nationally and not just as the industry of an area.

The fact that that autonomy could put them in the great danger of building up a highly centralised organisation, quite inflexible with its extremities, would undoubtedly bring them to their knees in a short time. In order that this eventuality might be avoided the area had been divided into 17 groups of reasonable, manageable dimensions. Each undertaking within a group was in its turn altogether autonomous provided there was borne in mind the jurisdiction of the group general manager.

So there were undertakings having the best possible form of freedom of action within their own confines, subject only to the policy of the group general manager who, in turn, was subject to the central policy of the Board.

Dealing with the technical side, they had obtained an enormous advantage in regard to efficiency and the promotion of service to the consumer.

An integration plan had been prepared on paper, which was in fact a 15 years plan. It had been worked out to considerable detail, and was being pressed forward as rapidly as possible.

Speaking of prices and profits, Mr. Welman said they were lucky in that in their first year's report they showed a profit of £1,000. In the course of one year the fluctuations in prices could be so considerable that no one could estimate closely enough to be sure that they would neither show a profit nor a heavy loss. They were, however, enjoined by the Act that they should break even over the years. It was immaterial whether they made a loss one year and a profit the next, provided that over a period of, say, 10 years they had in fact broken even.

Since vesting date the Board had had to face increased costs totalling £2,071,000. This was a heavy figure, even if account was taken of the large figures which had to be dealt with in the industry. In estimating any change in gas prices they had to try to show what increases were likely to take place between the time when those increases were decided upon and the time at which the income would be received from the application of those increased prices.

Prolonged discussion followed, during which Mr. Welman answered questions relating to the prices of gas, space heating, etc., bakery establishments, payment for prepayment meters by aged and poor people, increases in meter rentals, etc.

D

This paper to the Staff Conference of the East Midlands Gas Board at Skegness is divided into three sections—education, training, and welfare. It will, the author contends, be the responsibility of managements to see that employees are given opportunity and encouragement to derive maximum advantage from all three.

by
A. T. RABY,
Education and Welfare Officer.

EDUCATION AND WELFARE

I AM not going to detail the courses of study available to employees or the reasons why certain types of employees should study particular courses, or the opportunities available. I want to stress the need for management to stimulate interest and keenness among employees and to encourage them to take full advantage of the available facilities. At the end of the 1949-50 winter session, approximately 250 employees of the East Midlands Gas Board were following courses of study at technical colleges and other educational establishments. In June, 1950, the Board's education scheme was announced, the operative date being August 1, 1950. By the end of September, 1950, when the normal enrolments at technical colleges had been completed, the total of employees following courses of study had risen to over 600.

I am sure your experience has shown that advice and guidance to employees when they are considering a possible course of study are absolutely necessary. They ensure that employees are on the right lines and enable the manager to be certain that employees are not attempting a course of study which is obviously beyond them. Liaison with the technical college, and examination of term reports, will very soon bring to light any student who is attempting a course which is outside his capabilities.

Particularly with young employees we must strive to avoid any discouragement to their studies, because they are likely to be influenced to a great extent by success or failure. The young employee will tend to magnify any examination failure and consider he himself has no chance of making his way in the world. Young employees enter industry during the formative years and need advice and guidance then more than at any time in their lives; and the boost which a word of encouragement from the manager gives to a boy is amazing in many instances.

Centralised Courses

You will know how difficult it is to provide all the courses required by employees, especially in the non-industrial areas such as Lincolnshire, due mainly to the lack of technical colleges. However, arrangements have been made to centralise the courses at three points in Lincolnshire and employees travel to one or other of the centres. If there are other similar difficulties anywhere in the Board's area the education authorities will be asked to co-operate. I must say that in my dealings with education authorities I have met a large measure of goodwill towards the gas industry, and their help and co-operation have been willingly given. I would remind you that the Board's education scheme is designed to give opportunities to all classes of employee.

Regarding training, I want to talk about job training and the part the management can play to make it really successful. In many industries, training centres are set up where most of the job training is given to new employees. The Board intends to establish a small training centre at Long Eaton for conducting special full time courses for which there is a great need, the necessary facilities not being available at any technical college within the area.

Training centres no doubt play a very great part in the training of employees, but I think that very often departmental managers are apt to heave a sigh of relief at having the responsibility for training taken from their shoulders, and if anything subsequently goes wrong with the work of new employees to blame the training centre. Training in a well equipped centre is very different from the actual conditions under which the job has to be carried out. In any case the responsibility for training new workers is clearly that of the respective managements, and training on the job under actual working conditions has more relation to the practicalities of any job. It is not always possible to do this, owing to the noise factor, but in most cases it can be done. In any case lack of a training centre, or the noise in any particular shop, or lack of an instructor, etc., should not be made the excuse for failing to give training to employees.

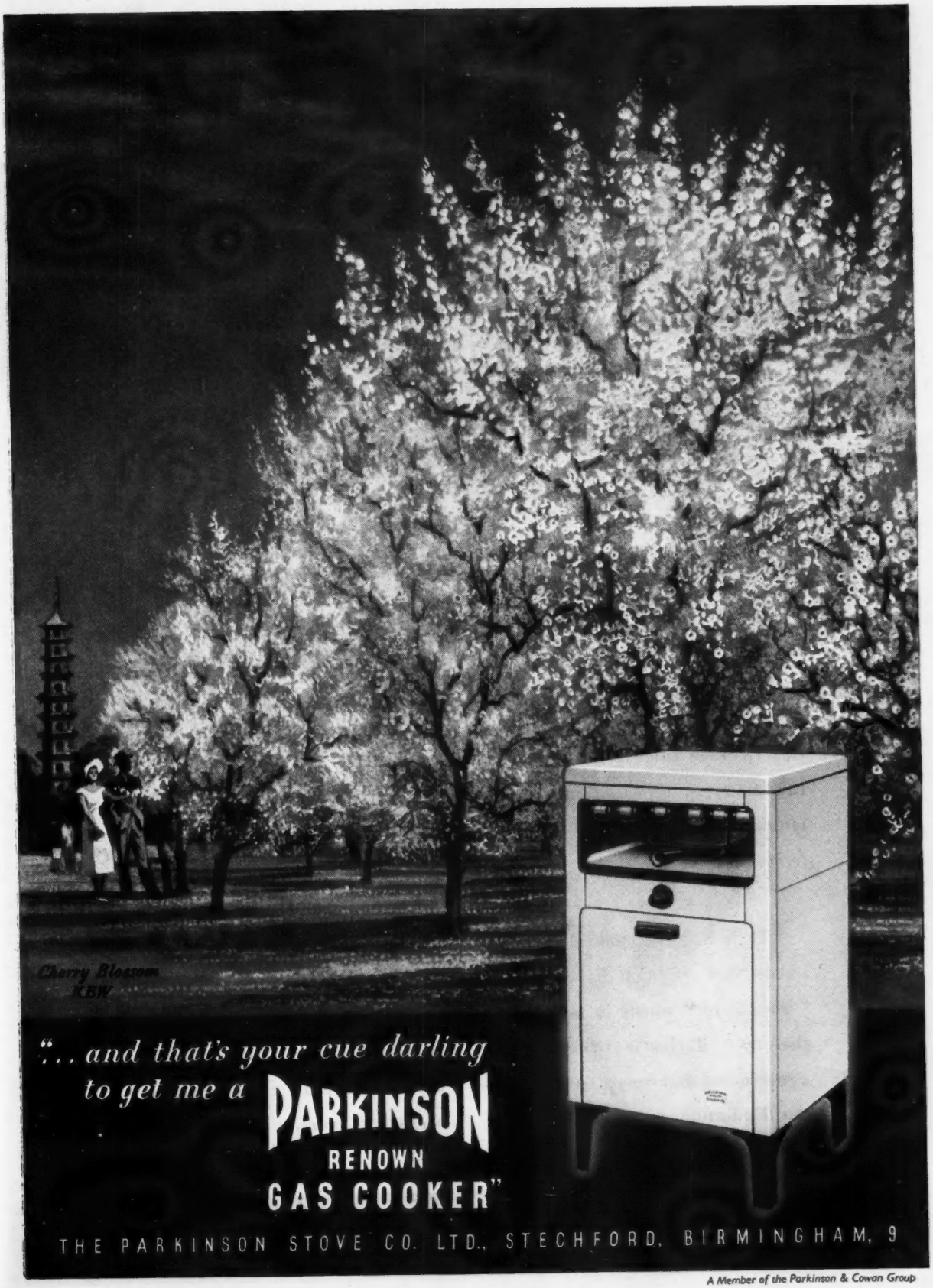
Training in methods of instruction should be given to chosen instructors, whether they are in the retort house, on the district, or in the office. Managers can give quite a lot of help and guidance to instructors by advising how a particular job should be explained to a new employee—advice as to the proper sequence of the instruction, the amount to be given at any one time, and the easiest way to set about the job. This will take a little time but will reap dividends in the form of better trained employees. The time taken to instruct new workers should also become reduced as a result.

Trainees

Each type of job will set its own problems for the instructor, but it must be remembered that all trainees are entitled to a reasonable amount of attention and will expect training and help in their first days at the undertaking. Manual workers need training just as much as any other employee and perhaps this can best be done under the supervision of the foreman. Office workers, male and female, must also be given training, and here the responsible person to do the job is the office manager, departmental chief, or section leader. There seems to be an unfortunate tendency to let office workers find their own level. Perhaps this is due to the feeling that all office work is pretty much the same and any small differences will reveal themselves quickly to the new employee. I trust no one here takes that view.

Apprentices and young people joining industry straight from school need special care and attention. Particularly with apprentices a constant check should be kept to ensure that the correct instruction is being given and that progress is being made. Reports on the apprentice should be obtained from the boy's foreman and from the tradesman who is giving the practical instruction. It is very important that the view of the man on the spot is obtained. If the interest and co-operation of experienced tradesmen in the training of apprentices are obtained, then the training will be so much better. One way of obtaining this co-operation is by giving the tradesman an opportunity to state his views on any apprentice for whom he is responsible. If the tradesman's views are ignored then it is likely that his interest in the apprentice will be lessened. It is important that boys are not placed with an unsuitable type of workman. The wrong man can do incalculable harm to a boy, particularly in the early days of his training.

The reports received from foremen and tradesmen should be considered in conjunction with technical college reports.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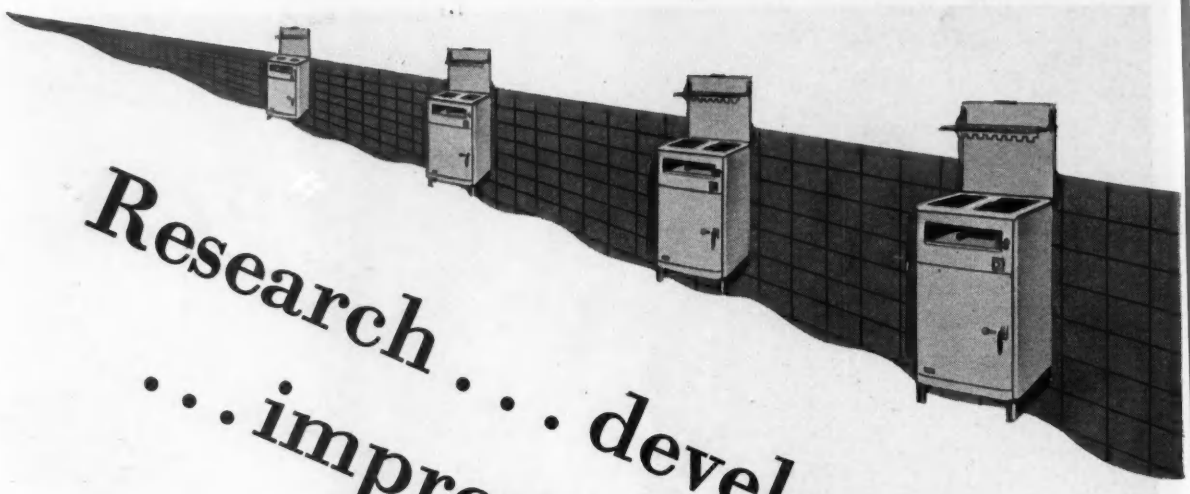

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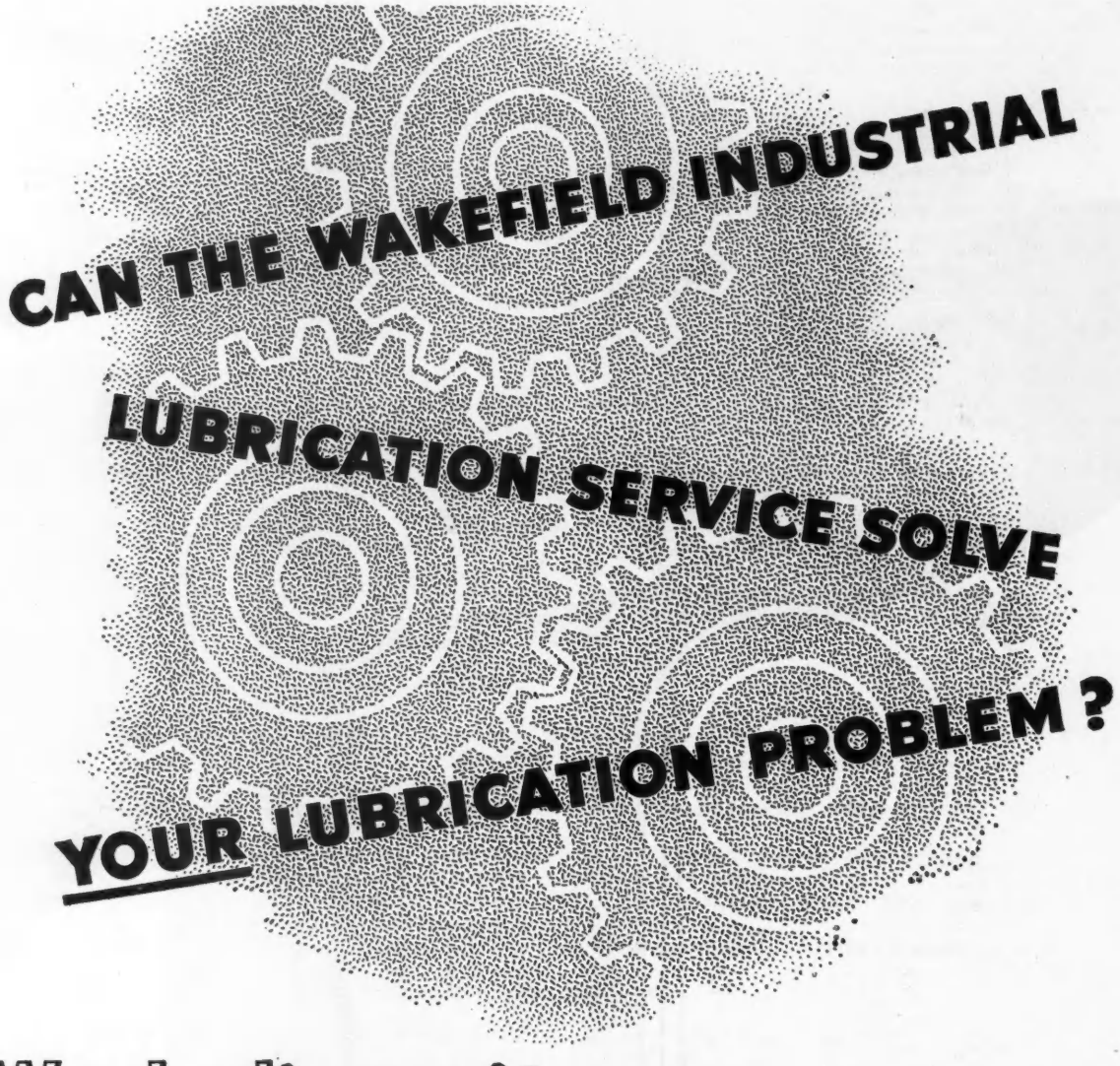

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The apprentice should be told of his progress and if he is not doing so well the manager should point out ways in which improvement can be made. I want to emphasise that verbal reports, particularly from tradesmen, will probably be just as informative as written ones.

Supervisory Training

I regard the training of supervisors as all important. No man should be expected to take charge of others without some training. The amount of training will differ according to the job and types of workers to be supervised. A supervisor is a member of management and is expected to support the management and carry out the policy laid down. He must, therefore, know what he is expected to support. The loyalty and support of first-line supervision can do more to build a happy spirit in an undertaking than any other single factor.

Working with men, building them into a team and exercising supervision over them is a difficult job, especially nowadays. It is as important for a supervisor to have this knowledge and ability.

One method of giving training to new and old supervisors is by the use of the Training Within Industry programme. The training is conducted by group discussion methods and this in itself enables a supervisor who is rather afraid of his own voice to get practice in formulating ideas and expressing them. Courses in Training Within Industry have already taken place with satisfactory results in two divisions of the Board and are about to commence in other places. It is excellent training for joint consultation also.

Welfare

The standards required by the Factories Acts should be the minimum at which the Board should aim. Plans for rebuilding are in existence at many undertakings and better welfare facilities are included in the plans, but that should not deter managements from improving the existing welfare facilities until such time as the rebuilding is completed.

Apart from the statutory duty to provide adequate machine guards, safe hoists and lifts, etc., it is obvious that industry has a duty to employees to ensure that all jobs can be done with the minimum amount of risk. Much has been done to improve conditions of working and to encourage safe working practices. I am not going to enter into the engineer's field of responsibility, but as a welfare officer I must make a plea that managers and engineers should look with a critical eye on all methods of working with a view to making the jobs safer to do. Because an accident has never occurred on a particular job, it does not necessarily mean that it is being performed in the safest possible way.

Employees should be encouraged to submit ideas for consideration by the Suggestions Scheme Executive Committee. By so doing they will be showing their interest in the work of the Board and will feel that they have a share in any success which may be achieved by it. This is one way to build up moral among employees and thus improve relationships between managements and men. Over 70 suggestions have been considered by the Committee since the Board introduced the scheme last October. About a third of these have qualified for cash awards, and some 30 submissions received recently will be considered in the near future. By far the greater proportion have been submitted by manual workers.

Joint Consultation

The constitution of joint consultative committees has now been approved at national level and you will shortly be asked to take part in the work of such committees in various parts of the area. The main functions of these committees are:—

(a) To promote and encourage measures affecting the safety, health, and welfare of persons employed by the employers and to discuss other matters of mutual interest to the employers and such persons, including efficiency in the operation of the services of the employers.

(b) To ensure the greatest measure of goodwill and liaison between employers and employees and to prevent or remove causes of friction and misunderstanding.

Questions relating to wages and salaries and conditions of employment which are normally dealt with between the employers and the appropriate trades unions will be excluded from discussion on the joint committees.

Properly conducted these committees can do an immense amount towards strengthening and improving industrial relations. The welfare of employees will quite naturally figure on the agenda for most meetings of the committees, and it will thus be possible to obtain the views of employees as to welfare conditions and enlist their co-operation and help in improving them.

The formation of sports and social clubs and full participation in the activities of the clubs by the majority of employees can be beneficial to the employees and the undertaking. The Board has made certain funds available in order to encourage the formation of sports and social clubs, but desires that the money shall be used in such a way that as many employees as possible will derive some benefit.

Organised visits of the clerical staff to the works and *vice versa* help to ensure that each employee better understands the work of the other fellow.

Recruiting Difficulties

Apart from the task of obtaining adult workers I want to emphasise the extreme difficulty in recruiting young people into the gas industry, especially in this area. The Ministry of Labour estimates that in 1955 there will be only half the number of young people in industry that there were in 1945. Therefore, to obtain recruits of a good type we must be able to compete with other industries. The number of boys wanting to take up apprenticeships increases every year; fewer and fewer boys want office jobs. I am quoting now from information given to me by youth employment officers throughout the area covered by the Board. The gas industry has conducted apprenticeship training for a number of years, but it is not well known to the majority of people, neither are the opportunities in the industry well known. The industry must take a part of the blame for this since up to the present it has not publicised its schemes of training to anything like the degree that some other industries have done. I understand, however, that the Education Committee of the Gas Council has now in course of preparation recruitment brochures designed to publicise the opportunities available to new entrants.

The manager through regular liaison with youth employment officers, schools, and the Ministry of Labour can do much to ensure that the prospects of employment with the Board, together with the avenues for promotion are more widely known.

As an example of the difficulty in obtaining young recruits to the Board, at one town (which is nothing like so highly industrialised as some in our area), there were 111 school leavers last Christmas and over 500 jobs available to them. A similar position obtains in all the industrial towns and cities in the Board's area. Youth employment officers have shown great interest in the facilities the Board is prepared to offer employees and the terms of employment, etc. They are prepared to bring to the notice of young people the advantages of working with us, but they make a special plea that managers inform them of any vacancies well in advance of the normal school leaving periods. As an indication, some of the officers were commencing school visits during January of this year, to interview and advise young people leaving school at Easter. It is important that parents are made aware of the opportunities for boys and girls in the gas industry. One way of doing this is by talks to parent associations connected with schools, and by giving full information to the other bodies mentioned in this section.

DISCUSSION

Mr. S. A. J. Horrod (Loughborough) said it had puzzled many people in the past that it had not always been possible to keep the subject of education and welfare as much in the forefront as it ought to have been and to keep it in the right perspective. Therefore, they were fortunate to have a man like Mr. Raby to guide them in these matters. He wished to make a small contribution to this discussion for one or two reasons. The first was that it was a subject in which he had taken great interest and he felt it was the focal point of all their deliberations at the conference. Secondly, he came from Loughborough, a name not unknown in the world of technical education and in the training of industrial personnel. Indeed, it might be claimed that the training in this industry originated in Loughborough. At the time of the first war, the then Principal of the Loughborough Technical College, Dr. Schofield, introduced what was then regarded as a revolutionary method in training people to take their active parts in expanding industry. These efforts had resulted in a College which was known the whole world over, for there were students all over the world in various commercial and industrial activities. At Loughborough the gas undertaking was in very close contact with the College which itself was in equally close contact with industry. The manufacturers in the neighbourhood were in close liaison with the College authorities and he supported what Mr. Raby had said in regard to the need for co-operation with technical colleges. But there was still much to be done if the gas industry was to obtain the right type of personnel. This department of the Board's activities was one which local people should carefully consider. It dealt with the problem of human relations and the matter of personal contact which was vitally important.

Prototype Retort House

Continuing, he said he would like to illustrate what was the practical interpretation of some of the things raised by Mr. Raby. During the past 12 months a scheme had been worked out for putting some of these things into operation and he was pleased to say that so far as the Board's education scheme was concerned the whole of the young people were taking advantage of it in either engineering or commerce. Again, Loughborough was the forerunner in installing a prototype retort house away from the other rather cramped buildings. The design was not so modern as present-day retort houses but it was a bargaining point when they were negotiating in a difficult market for labour. In the matter of first-aid, a large number of the employees had received some training in that, and it was well appreciated by them. They also had their own fire service. In that connection they had been able to establish a simple relationship with the County Fire Service which would be most helpful in meeting their demands. A Sports and Social Club had been established which had proved most useful in bringing together the young people from the various departments, and recently he had submitted a scheme for providing very much improved accommodation.

Mr. T. W. Dodds (Horncastle) said he did not agree that Loughborough was the first to introduce technical training for industry. He believed that the North was the first, for he went to a technical school organised by the United Steel Companies. He served his time as a mechanical engineer before he entered the gas industry and he believed that the small works offered ample facilities for training personnel for the gas industry.

Mr. W. Albans (Consultative Council) said that the iron and steel industry in Scunthorpe gave five scholarships at Sheffield University each year of a value of £36 and the boys who took these had never been inside a technical school. Eventually they had occupied high positions in the iron and steel industry. Could the author say whether the Board had anything in mind in regard to boys who had missed their training in the early days and had later found out they had a capacity for work in the gas industry and might wish to try and overtake what they had lost. That could be done by suitable encouragement by the people in command.

The Chairman said that as regards scholarships, the Board had made no decision yet. On the other point mentioned as to the availability of the education scheme for people who wished to improve their knowledge, Mr. Raby would be able to say something.

Mr. Raby said that the education scheme would provide opportunities for all employees, of whatever age, to study. There were certain regulations, not very hard ones, to comply with, and any boy of 17 or 18 could start to study under the Board's scheme. It was also true that any boy or anyone of any age could start to study and would get day release and they would also be helped to attend college or take a correspondence course.

Councillor B. Powell (Chairman of the Trade Union side of the Area Joint Industrial Council and Deputy Chairman of the Council) said he would have liked the author to have dealt in a little more detail with the question of works committees, for it seemed to him that these committees would be of very great importance in the industry in the future. All was not well in the industry as far as the manual workers were concerned, and in saying that he did not mean that the position was worse in the gas industry than in any other. But it was common knowledge that there was wide dissatisfaction and very considerable unrest in many industries today, and he took it that it was the desire of the Board and the industry generally to improve matters. Works committees could play a very important part to that end or they could still further worsen relations. He had had a wide experience of production committees in other fields and he had found very often that these committees had failed because management had failed in their true assessment and appreciation of the issues involved. For instance, he did not think the works committee could be delegated, so far as leadership was concerned, to anybody else than the manager. When questions arose on the works committee, and particularly in the initial stages, he hoped that managers would be sympathetic in their approach to these matters because that would give what was lacking today—*viz.*, the opportunity of explaining reasons. He had had experience of management himself and had always found that if adequate reasons were given to the men they were reasonable creatures and would accept them.

The Chairman said the Board were anxious that the joint consultative committees should prove a real success. If they had the backing of the trade union side, as they evidently had, there would be tact and patience and consideration for all aspects and all problems, and it would be possible to go forward without any fear that the committees would not work well. It certainly was the Board's earnest desire that they should do so.

Mr. W. A. Pask (Leicester) remarked that his undertaking had been, in many ways, what might be termed the guinea pig in regard to some of these welfare experiments, but the results had been extremely beneficial. One of the chief advantages of any system of this nature was the bringing closer together of the management and the workpeople. Unfortunately, it was the fact that when an organisation passed a certain size it became more and more difficult for the management to retain personal contact with the various sections of the workpeople, but training courses, joint consultation, social clubs, etc., gave the management—and he used the word in its broadest sense and not its personal sense—the opportunity of close personal contact with the workpeople so that there was a better understanding and, what had always been his own particular gospel, better service to the public.

BRITISH STANDARDS EXHIBITION

The contemporary benefits of standards, standardisation, and simplification will be graphically presented at an exhibition to be staged at the Science Museum, South Kensington, London from June 18-29, in which practically all the major industries who use the B.S.I.'s services will take an active part.

Each industry will show how standards have simplified production, reduced costs and maintained quality, and how in turn they have benefited users of its products. Test apparatus designed to secure compliance with British Standards will be shown, together with many special exhibits of an unusually interesting nature. Among them will be features showing pictorially 'What are Standards?' and 'How Standards are Prepared.'

It is hoped to obtain wide press publicity for the exhibition at home and abroad, and there is already substantial evidence that large numbers of people in industry and the technical professions will make a point of visiting the exhibition. Some firms have also indicated that they will wish to arrange conducted tours for their chief officials and staffs.

Improvements in
GAS MAKING CONDITIONS
on a Small Works

by H. J. STANLEY, Penmaenmawr.

(A Paper to the Wales and Monmouthshire Section of the Institution of Gas Engineers at the Spring Meeting at Llandudno)

HAVING been invited to present this paper, I do so with two main thoughts in my mind; firstly, that it is the exception rather than the rule for managers of small works to present papers, and secondly in the hope that the experience and difficulties encountered may be of some assistance to other small works managers with similar problems.

When I was appointed to Penmaenmawr in 1947, I was fully aware that the carbonising conditions were not in a very healthy state. In common with a great number of undertakings, the war years, with increasing loads, together with the shortage of materials for effecting major works improvements and the poor class of labour available, had considerably reduced the efficiency of the plant. These difficulties were aggravated by the fact that the adjoining works at Llanfairfechan had been closed down and the load transferred to Penmaenmawr.

The plant consisted of three settings of eight retorts, 9 ft. 6 in. long, 22 in. by 16 in. section, machine charged, but hand drawn. With the concentration of the manufacture at Penmaenmawr, the whole of the load of approximately 46 mill. cu.ft. per annum was put on to these three settings. The poor results obtained were causing great concern as sufficient gas was not being made to maintain full pressures in the outlying districts and it was very difficult to keep up to the declared calorific value of 450 B.Th.U. An extension setting of eight retorts had been on order for some time, but was held up for lack of steel. It was decided in view of the bad conditions existing that there was no prospect of carrying out retort resetting or effecting any major improvements without the help of this new extension. Pressure was, therefore, put on the Ministry for the steel, and in view of the urgency of the job this was granted, enabling the erection to proceed. In the meantime an investigation was made into the reasons why the maximum output was not obtainable from the three settings. These were estimated, with producer gas dilution, to be capable of producing 180/190,000 cu.ft. of 450 B.Th.U. gas per day which was about the maximum day's output during the height of the season. The results being obtained at the time were only 90/100,000 cu.ft. per day of under 450 B.Th.U. gas. A number of factors were thought to be responsible for the low output and quality, such as the erratic manner in which the retorts were being charged and drawn, and badly fluctuating heats on the settings, but what was even more serious was the abnormal number of blocked pipes.

Pipe Troubles

It was obvious that the ascension pipes, bridges, and dips should receive attention. The first work was to burn out and clean all the pipes and bridges and get large size augers to work on them, and this was done. The trouble, however, persisted and in a few days they were as bad as ever. In an effort to get to the root of these pipe troubles, record sheets were introduced for the recording of the times of charging the retorts, which were numbered to prevent the wrong retort being drawn or one left in too long. The producer fires, which were being badly cleaned each shift, were changed over to a good cleaning every 24 hours, and one stoker on each shift was made responsible during alternate months for his particular fire. Since this was done we have had no trouble with heats. Considerable time and material was spent in patching the retorts to make them gas-tight, but no improvement in the pipe troubles resulted.

Various sizes of charges and carbonising times were tried out and certain experiments with varying results were made by putting selected retorts on to oil gas-making in an effort to step up quality and makes, but nothing we did seemed to effect any improvement on the pipe troubles. It was no uncommon occurrence to have more than half the ascension pipes and bridges blocked at the same time, and the stokers spent more time on trying to keep them gas-making than on anything else, which had a lot to do with the haphazard manner in which charging, etc., was carried out. Another serious aspect was that the men were losing heart at the job due to punching away continually at blockages and it was becoming increasingly difficult to get men to do the work. By now it was evident that the trouble was of no ordinary nature and called for closer investigations.

Hydraulic Main Seals

The next matter to receive attention was the question of seals in the hydraulic mains, and it was found that the same 'pull' conditions did not obtain on each and every setting. At times one setting would be 'heavy' and the other subject to excessive 'pull,' and when these were sealed by running additional liquor into the hydraulics the conditions would reverse themselves, and so on.

Levels were then taken of the hydraulic mains and the dip pipes in each hydraulic, and it was found that none of these were at the same level. An attempt had apparently been made previously to solve this problem by inserting 'sleeves' into the dip pipes to level them up, but in cleaning blockages these sleeves had either been driven off into the hydraulics or moved out of position. By this time the new setting was ready for work and it was found that this again was at different levels, and within a few days of being put to work was in trouble with blockages. As this was a complete new job with new ironwork we knew that our troubles were not being caused by leakages. All these investigations finally led us to one conclusion, that the troubles were being mostly caused through uneven seals and consequent overpulling on the retorts.

After a long discussion with my then Chief, Mr. A. Ifan Jones, we eventually decided to do away with seals altogether, although with a little concern, as it was not certain that the retort house governor, which was an ordinary standard Peebles type, would be suitable for the very fine limits in which it would be required to operate.

To obtain one of the more costly type of governors used for this fine work was out of the question for a project of experimentation. I would say at this stage that a recorder loaned from the Technical Advisory Service of the Board has recently been recording the performance of this governor as a check against the Dead Beat gauge and we find it can be operated in as fine a limit as 1/50th inch above or below zero.

We commenced by cleaning out the hydraulic mains, removing all the remaining sleeves from the dip pipes and out

of the mains. The pipes, bridges, and dips were all cleaned out and also the retort house governor. The tar run-off valves under each hydraulic were then opened and left open. The level of the liquid in the tar tower was adjusted so that all dip pipes were unsealed, but some liquid was retained in the bottom of the hydraulics. The retort house governor was set to 'level' gauge and the stokers given strict instructions never to allow any 'pull' to creep on to the settings; if anything a slight back pressure was to be preferred. They were told why these steps were necessary and that it was hoped by careful attention to save them a great deal of work with blockages, and to encourage them to take an interest in the job.

Within a short time it became evident that we were on the right lines. The quality and the makes of gas showed remarkable improvement. We were, however, not over-confident as sufficient time had not elapsed for any defects in the new system to show themselves, so for a time a very close watch was kept on the performance of the retort house governor and the retort house conditions generally. After a few weeks we began to feel confident that we had reached the end of our troubles. We still had a few blockages, but these were only in the mouthpiece and easy to clean. The makes of gas had by now risen considerably, so much so that additional producer gas could be added. The charges of coal into the retorts were increased from 3 cwt. to approximately 4 cwt. per charge and these were carbonised inside the eight hours' period. The output of mixed gas had now reached the maximum of 190,000 cu.ft. per day with an average quality of 455 B.Th.U. These results were obtained from the new setting plus two of the originals, the oldest setting having been closed down.

The comparative figures before and after changing over to dry seals were:—

	Average make per ton.	B.Th.U.
Before carbonising with dry seal ...	12,000	440
After carbonising with dry seal ...	14,000	455

As time went on we found difficulty in getting the tar to run off to the tar tower due to the tar main on top of the settings being dead level, with no room to make a fall to the tower. The setting nearest the tower had been shut down and this had naturally cooled down the tar at this end. We put into operation a small portable steam boiler that was available on the works and we found that when the tar main became sluggish, about two hours' light steaming each week was sufficient to keep it clear.

We had trouble also, with the retort house governors sticking at times. This governor was fitted with alternative side and bottom inlets, and owing to the low headroom available the side inlet had to be used. Tar was frequently deposited on the valve and guides and needed frequent cleaning to keep the governor free. We accordingly moved the whole outfit from the top of the settings to a point on retort house floor level where the bottom inlet could be used and we have had no further trouble with this. Another factor that showed great improvement after the change over to dry seals, and due to being able to charge the retorts with heavier charges, was the naphthalene problem. Prior to these alterations we had been greatly troubled with naphthalene, to such an extent that the top of the oxide in the purifiers, the holder mains, and mains and services on the district were saturated with it. After the change over and with the larger charges this trouble greatly diminished.

We recently cleaned out the hydraulic mains after 15 months work and found no sign of any pitching up and very little deposit at all.

Recent tests carried out by our group chemist from Colwyn Bay produced the following results:—

Average B.Th.U. ...	... seven tests	...	457.5 B.Th.U.
Specific gravity ...	... three tests	...	0.60
Ammonia, town gas	... three tests	...	Nil
Naphthalene, town gas	... one test	...	2.9 grains per 100 cu.ft.
Average combustion chamber temperature			1,320°C.
CO_2	four tests	...	4.1%
O_2	four tests	...	0.9%

CARBONISING RESULTS.

Average make of gas per ton	13,630 cu.ft.
Gross make of coke per ton	13.5 cwt.
Used on producers	3.0 „
Used on dilution	0.3 „
Available for sale	10.2 „

The slight drop in make per ton in recent results is due to the fact that we found ourselves in a position to carbonise 50% North Wales coals instead of 100% Yorkshire as before. This was done because the quality allowed us to do it and the haulage on North Wales coal is cheaper than on the Yorkshire. It is anticipated that a small saving will result as a consequence.

It was not my intention to introduce any remarks into this paper as to the benefits or otherwise of nationalisation, but I do not think that it would be out of place to say that such changes as the electrification of exhauster drives, and the assistance obtained through information provided by the Technical Advisory Service by means of the group chemist, has been of great advantage in the day to day control of carbonising on small works. The co-operation of Group Committees and Group Chairmen with the small works manager must inevitably result in better efficiency being obtained. An instance of this was related in a recent five minute paper by our Group Chairman, Mr. H. Blythe, of Colwyn Bay, in connection with our charging machine cable. This was originally situated overhead in the retort house and was continually being burnt out and it was a very dirty job fitting in a new cable. I mentioned this to my Group Chairman and experiments were carried out which resulted in a new method of feeding the machine being installed. Previous to this we used about six cables per annum. The present cable has now been in use for over 15 months and if anything happens to it, connecting up a replacement will be an easy matter.

I may say that the figures given are not out of the ordinary in any way, indeed I know they can be improved on. Some are no doubt getting much better results and they have not been given with a view to drawing comparisons, but simply to show the transformation from poor results and conditions to at least reasonable results.

In the smaller works we are dependent to a large extent on unskilled labour, and results vary according to the type of labour available in the district, but I do think it is up to every small works manager to make his retort house conditions as agreeable to the men as can be managed within a reasonable framework of expense.

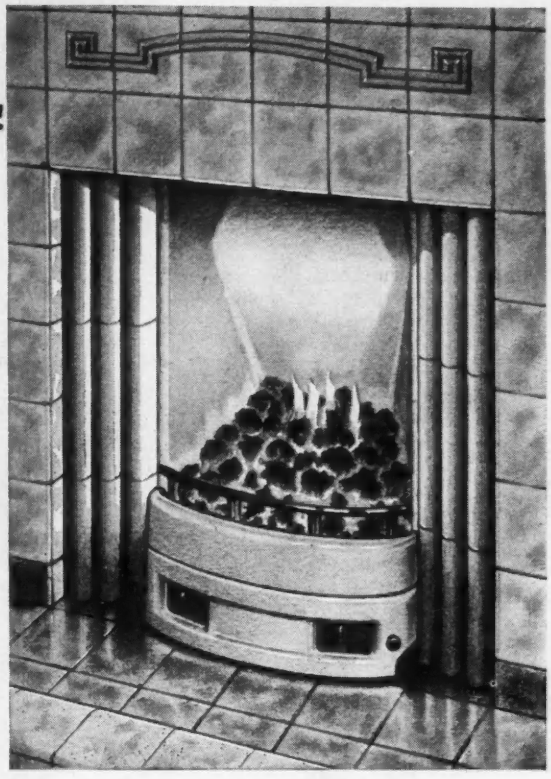
DISCUSSION

Mr. J. R. Wood (Bangor) said that as a result of what Mr. Stanley had done at Penmaenmawr he had achieved considerable improvement at Bangor, both in thermal results and in the question of stopped pipes. On the smaller undertakings there was not always a man available, and in adopting dry seals a good retort house governor was essential.

Mr. W. Clark Jackson said the paper showed what could be done on a small works. Four essentials dealt with in the paper were the adoption of dry seals, the electrification of the exhauster drives, attention to the retort house governor, and the maintenance of reasonable heats in the combustion chamber. He suggested that with dry seals they should have an overhead tank full of liquor, with a valve which could be operated by a man with a rod so that the seals in the hydraulics could be restored. He noticed that Mr. Stanley claimed a gross make of 13¼ cwt. of coke per ton of coal carbonised, and suggested that with North Wales coals the make might fall to 13 cwt.

Mr. Stanley agreed that they had lost about ½ cwt. per ton since changing over to North Wales coals.

(*Concluded on p.* 630)



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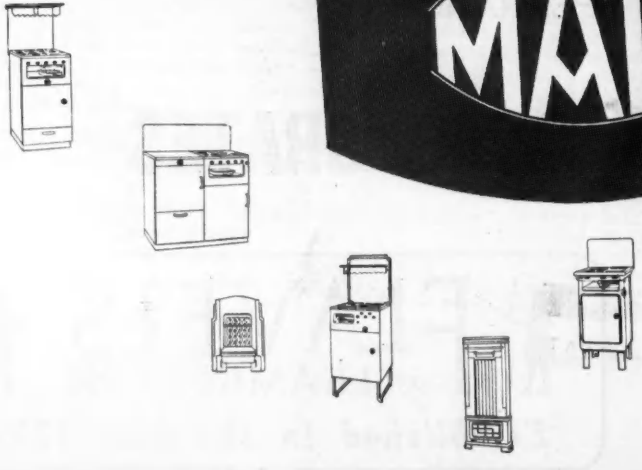

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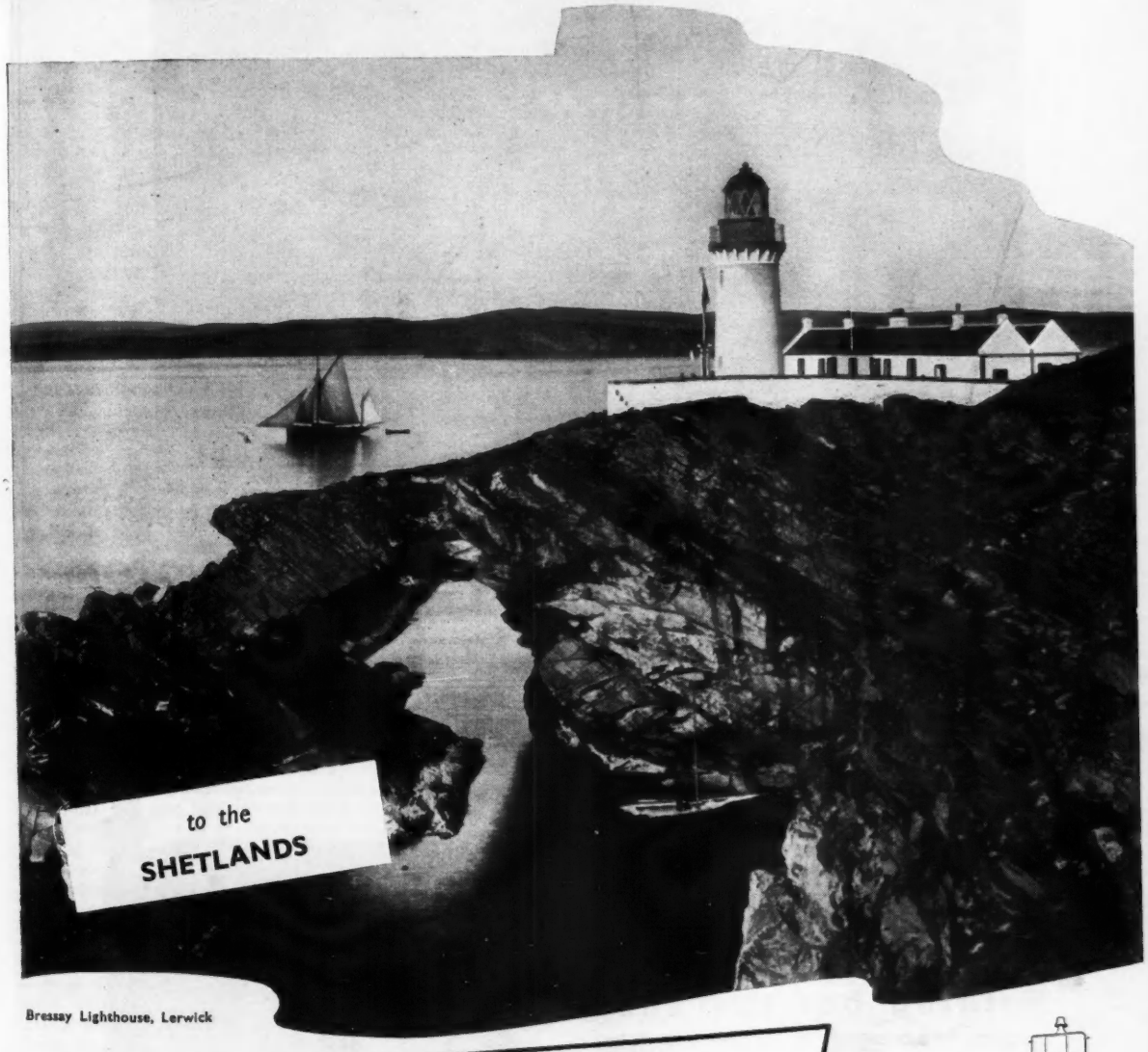

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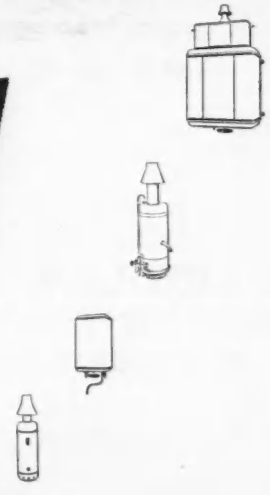

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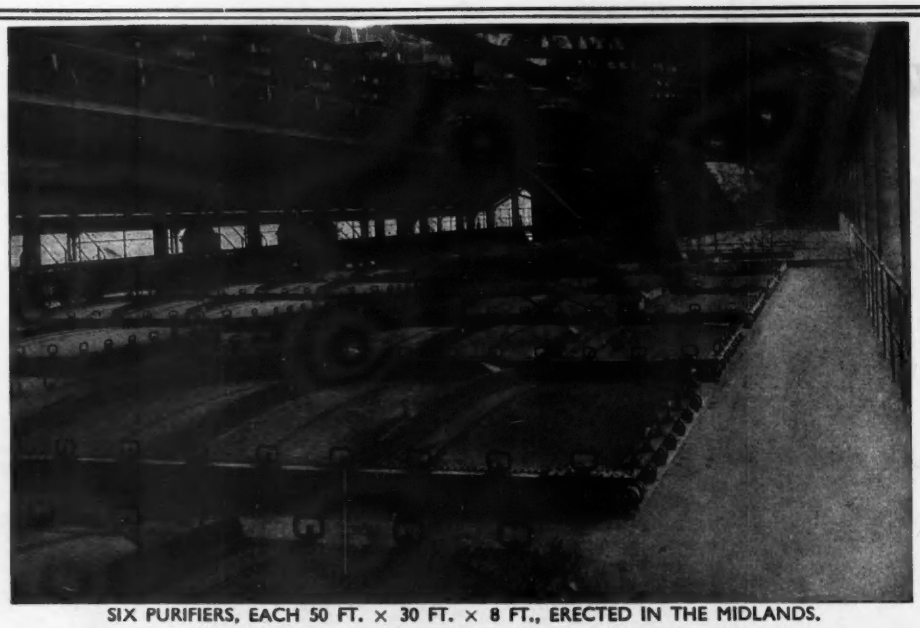

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Integrated Gas Supply

by

F. W. SANSOM, M.B.E.,

Distribution Engineer, Exeter Sub-Division, South Western Gas Board.

(From a Presidential Address to the Western Junior Gas Association)

WHEN we consider the Industry as it exists today we are almost at once confronted with instances of bad practice, more especially in connection with some of the smaller units which now form part of our various sub-divisions. We are not here concerned with the system which gave rise to these conditions but rather with the determination of their existence and with their correction.

On the production side, badly maintained carbonising plant and inadequate purification plant would appear to be the most frequent causes of poor gas quality, while inadequate condensers have been found to be a contributory cause of excessive naphthalene on the district. Inadequate gasholder capacity and inaccurate station meters have made control of existing carbonising plant difficult, and where such conditions have been met with, the production staff have undoubtedly had their difficulties. Close liaison has been necessary between the utilisation, distribution, and production sections during these early days of nationalisation in order that district complaints could be traced back to their source and a remedy applied.

Pressure Complaints

The most frequent complaint has been of inadequate pressure, but on investigation it has sometimes been found that, owing to boosting into an inadequate mains system, the cause of this complaint has been excessive pressure fluctuation with load. A case was investigated recently where pressures rose from 3 in. W.G. to 14 in. W.G. within 10 min. as the cooking load ceased. By relaying the trunk main from the works to the centre of this particular town the trouble has been completely eliminated and the pressure drop on peak load is now of the order of 0.5 in W.G. and boosting is no longer required.

In another case pressure fell to almost zero in one street at peak load time and relaying the mains throughout this small unit has enabled stable district pressures to be maintained and has resulted in a 60% increase in consumption being obtained during the past year.

Varying gas quality has been found to be a cause of many district complaints and it has been necessary to give this matter special attention at some units.

The elimination of these purely local complaints should be looked upon as a short term operation to be completed as quickly as possible. Their effects are confined to a particular unit and in the case of inadequate mains often to a particular area or street. They reduce the efficiency of the service to the consumer and, even if the number of specific complaints received is not large the development of gas sales is undoubtedly retarded. In an effort to eliminate these local defects much could probably be effected by instructing district fitters to report any utilisation efficiency found to be lower than best practice demands, and by carefully investigating such reports. Where fitters have worked for some years at the same unit they will tend to accept the standard of that unit as their criterion and visits by district inspectors from the largest unit in the sub-division may be considered desirable.

Although I have mentioned inadequate mains as being one of the chief contributing factors to poor district conditions, it has been found that defective and inadequate services are fully as important and probably present, in the aggregate, a larger problem. They are not so readily found as is an overloaded main, but, for the individual consumer, their effects are just as serious and their renewal is just as productive of satisfaction, and possible increased consumption. As an indication of the magnitude of this problem, I would mention that in the Exeter sub-division we relaid over 1,600 services during 1950 and that had the labour been available the number could have been considerably increased.

With the shortage of skilled labour now being experienced it would seem wasteful and against the best interests of the Gas Board to employ gas fitters on service laying work or, in fact, on any work other than gas fitting. As supplies are made available to new districts as a result of the spread of integration networks it is easy to foresee that the fitting-up of new consumers' premises may well become the bottleneck which may slow up the expansion scheme, and from this point of view alone the training of service layers could well be substantiated.

As a medium short term policy, I would therefore suggest that our aim should be to provide gas of constant quality and with combustion characteristics varying over but narrow limits, efficiently distributed at each unit with the minimum of pressure variation and delivered into each consumer's premises through an adequate service. Much work will, of necessity have to be done if this ideal is to be attained and will involve all sections of the local organisation.

Long Term Planning

Turning to long term planning, we are at once faced with the question of whether to modernise and enlarge existing works or to centralise gas production and provide bulk supplies of gas into the holders of the smaller units through a system of high pressure mains. This is a problem to which there is no ready answer which can be applied to each and every case, but it is by now fairly well known that the policy of the Gas Board is to centralise production to an extent limited only by economic considerations and to distribute the gas through an integration network or grid. We may therefore accept it that such a policy will provide the focus towards which all development for the next 20 years will be directed and against which all possible alternative gas supply schemes will be measured.

Figures relating to cost of gas production since vesting date indicate that our existing larger works are able to produce gas into holder 4d. to 5d. per therm cheaper than works of about 50 mill. cu.ft. per annum and up to 10d. to 1s. per therm cheaper than works of very small size. It is reasonable to assume that the new and larger manufacturing plants of the future will be more economic in respect of gas production costs than the existing medium sized works of today, thus still further improving the economics of the scheme.

Out of any economy to be derived from centralised production we have to provide the new and additional manufacturing capacity at the main station, H.P. bulk supply mains and control equipment, additional compressors, and also to bear the costs of compression. Any scheme of integration can

only be considered sound if, after all such charges have been met, the gas is made available at all units throughout a subdivision at a lower cost than would have been possible by continued production at each unit individually.

Centralised production does, however, eliminate the necessity for continued repairs and renewals to existing smaller manufacturing stations, which in general would be heavy, as well as the extensions which would be necessary during the next 20 years to cope with the increased load which it will be necessary for the industry to meet if it is to make satisfactory progress.

The selection by the Board of the correct policy for the long term development of the area must have been difficult, but the more we examine it the greater must become our conviction that it is the correct one. Once we accept this fact and consider how our individual efforts must combine, if full achievement is to be attained, we realise that our future service in the industry must be more interesting and more worth while than many considered possible just two years ago.

Gas Holders

An essential part of any integration scheme will be the holders at the chief centres of consumption. These will generally be those of the existing small works which are to be closed down and in many cases it will be found that the existing holders can be expected to be of some service for many years. Some will require major repairs and some may lend themselves to the addition of an extra lift, but provided their capacity is in excess of half a maximum day we should be able to manage with them. It should be remembered that for a considerable portion of the next 25 years our bulk supply mains will be working at a reasonably low load factor and that a central manufacturing station will provide facilities for the more rapid refilling of district holders than could have been provided by local works.

From a purely distribution point of view holders of a maxjmum day's capacity would be an advantage, but in view of the present high cost of this type of plant I fear we shall have to be satisfied with something less. I would suggest, however, that when the construction of a new holder is under consideration it may be found that an increase in capacity over some particular sizes of from 20% to 40% may be obtained for a much less percentage increase in cost, and that if we can get a 20% larger holder (17 hours compared with 14 hours) for 10% greater cost, then the extra expenditure is were justified.

There will be a need for new holders in most integration areas, either as replacements for existing defective or inadequate holders or as new storage capacity in the larger villages to be provided with a gas supply. In such cases a desirable compromise capacity would seem to be three-quarters of the ultimate maximum day. We are likely to find, however, that the siting of such holders will be difficult and consultations with the local planning authorities may be protracted. For this reason and because of possible foundation difficulties on the low lying sites which planning authorities are likely to favour, it is desirable that negotiations concerning new holders should be opened much earlier than would normally be considered necessary.

The question of supplying consumers direct from H.P. grid mains has been the subject of many discussion, but it must be obvious that there can be no single policy which can satisfy all conditions to be met with. These may vary from the isolated consumer living alongside the route of a H.P. trunk main to hamlets and villages of 200 to 300 houses. If we are to make a gas supply available to the maximum number of consumers, we must accept our consumers wherever we find them, and deal with the method of providing the supply to them according to the merits of each individual case.

For the smaller hamlets so common in the West Country, it would generally prove uneconomic to provide local holders and the load must therefore be accepted as a direct one on the grid mains. Where the hamlet does not lie directly along the route of the grid main the obvious solution is to provide a district governor of suitable capacity feeding a local low pressure main from which consumers will be supplied. If the houses are sited reasonably close together, thus enabling the local mains system to be provided at reasonable cost, this is probably the best solution.

Where a hamlet or village lies completely along the route of a grid main detailed examination of each case is necessary, and I would suggest that direct service connections with individual governors in each consumer's premises should only be employed if the alternative scheme proves to be considerably more expensive.

All such direct supplies impose a varying load having a high peak of short duration on the grid system, but I feel that the load is sufficiently valuable for us to accept this technical disadvantage. If our grid mains have been calculated to be of sufficient size to provide the necessary bulk supply for the ultimate maximum day or a 20 hr. delivery schedule, we can quite well absorb the peak due to direct loading in the initial stages by using some of the excess capacity of the mains and in the ultimate stage by reducing bulk supply deliveries during peak load hours.

There has been some change of outlook during recent years regarding the type of main which is suitable for high pressure working. It had generally been customary in the past to employ steel mains with welded joints but recent experience has shown that modern spun iron pipes with mechanical flexible joints are eminently satisfactory for pressures up to 25/sq. in. with some saving in cost, and it is now almost common practice to use such mains.

On an extensive integration network it is essential that the input to the holders at each unit supplied should be rigidly controlled to a pre-arranged schedule, otherwise the load on compressors and pressures within the grid mains will be constantly varying and under extreme conditions such fluctuations may become excessive and even dangerous.

GAS MAKING CONDITIONS

(*Concluded from p. 624*)

Mr. H. Maycock (Holywell) said he had changed to the system described by Mr. Stanley in September, 1946, and had had no difficulties whatever. There had been no trouble with blocked pipes, and the thermal yield was slightly better.

Mr. S. L. Wright (Gas Engineer, Wales Gas Board) said that for the benefit of managers who would like to follow Mr. Stanley's example the Gas Board had placed an order for a number of retort house governors. It might be some time before they were delivered, but it would probably be a consolation to know that they were on order. The principles of working with dry seals were set out in the late G. M. Gill's book on carbonising in horizontal retorts, and he recommended those who were interested in the subject to study that book, copies of which were available. Mr. Stanley had not referred to liquor circulation; it was an advantage if arrangements were available for the circulation of liquor through the system. Mr. Wood had asked him to emphasise the benefits he was getting from the absence of naphthalene troubles.

Mr. Stanley said the reason they had not circulated liquor was that it was not easy. They would like to do it, but the liquor storage tank was some distance from the retort house, and the retort house did not lend itself to the installation of a tank at suitable level. The question of pumping liquor had been looked into. In view of the fact that they had had no trouble they had left it alone.

Mr. J. Powdrill (Chairman) in congratulating Mr. Stanley on his paper, said the Management Committee had done all it could in the last two or three years to encourage papers from the smaller undertakings. Mr. Stanley's paper was a notable example of the wisdom of that policy.

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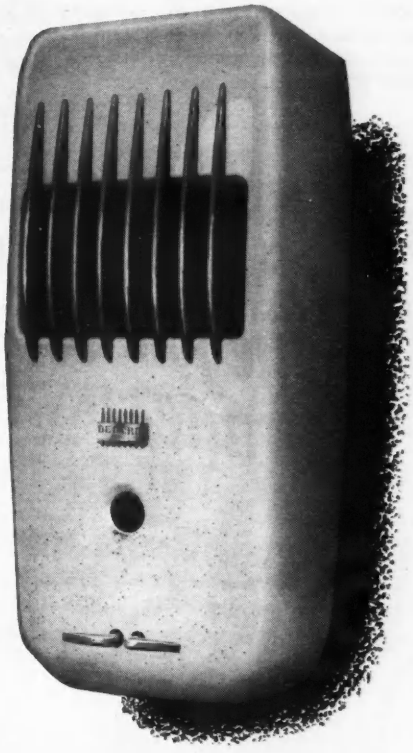

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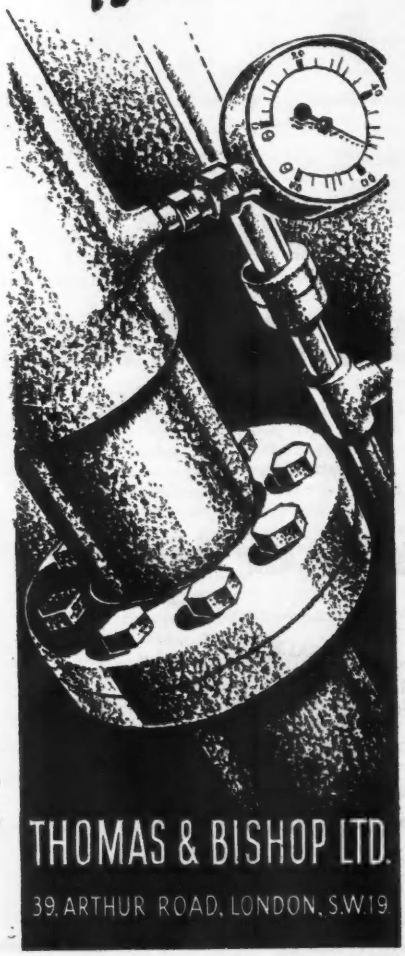

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TRADE NEWS

British Jeffrey-Diamond

Catalogue No. 1479 is a publication describing with illustrations their range of crushing equipment. There is a machine in the range of breaking, crushing, pulverising, and grinding machines for friable and semi-friable materials to suit product requirements from 8 in. cube down to minus 300 B.S. mesh in capacities from a few hundredweights per hour to hundreds of tons per hour. Several of the machines can also be adapted for reducing fibrous materials. *British Jeffrey-Diamond, Ltd., Wakefield.*

Electropower Gears

A new range of geared motors and speed reducers is announced. It covers the range from 1/10th—27 h.p., with a standard minimum speed from 6 r.p.m. up to 556 r.p.m., a very large selection of speeds in between this range is available on double and triple reductions. These units can be offered to give variable speeds when fitted with variable speed type motors. Also available are 2, 3 or 4 individual speeds, by means of fitting pole change type motors. Any type or make of motor can be fitted, subject to the physical dimensions being suitable.

All gear boxes are of the spur wheel type, very silent in operation, and are used for practically every industrial purpose, and are eminently suitable for building into most types of machine tools and manufacturing plant generally. *Electropower Gears, Ltd., Kingsbury, London, N.W.9.*

George Kent

It is often most convenient to provide a record of a number of measured variables in a plant at a point remote from the place of measurement. In this way a record is obtained which gathers together a number of individual records or indications in a place where they can be examined centrally under more suitable conditions. Telemetering, or telerecording, is usually carried out by electrical means. But the extensive development of air-operated control has led to the application of this servo-medium to the field of remote transmission. Pneumatic telemetering is obviously a desirable feature in a plant which already functions with an air-operated control scheme, but apart from this it has advantages over an electrical system. These apply particularly in industries where elaborate fire precautions must be taken, where the use of electrical power would be dangerous in the presence of inflammable gases or liquids, or where explosive substances are met with.

George Kent, Ltd., have now produced a multi-point air-operated receiver recorder for use in these circumstances. It provides a synchronised side-by-side record of the principal measured or controlled variables in a system. It can be used in conjunction with a transmitter mounted in any of the standard Kent instruments (mercury or ring balance types for flow, 'Multelec' potentiometers, pressure or temperature controllers) or with transmitters of other makes provided that they emit the required pressure range. All the components of the receiver are standard. The bellows unit, which is essentially a pressure gauge, comprises standard components largely as used for the Kent Mark 20 air-operated control unit.

The receiver records on a chart divided into three distinct zones and can operate on 3, 4, 5, or 6 points. When it is operating on more than three points, and two pens are recording on one zone, different coloured inks are used. Pen travel is 3 in. for each point. Each pen is provided with a separate zero adjuster. The chart is driven by a synchronous electric (A.C.) motor and at the standard speed will last for two months. To facilitate chart changing the chart roll is mounted on a drop-frame. The instrument includes an air filter, pressure reducing valve, moisture sump, and pressure gauge. Air connections are by unions to nipples on the side of the meter case. The system air pressure range is 3 to 15 lb./per sq. in. and the maximum working distance from the transmitters is 1,000 ft. The mechanism is mounted in a cast aluminium case which is suitable for wall or flush panel mounting. The dust-proof door seals on a rubber joint and is fastened by two locks embodied in the handles. The net weight of the instrument is 70 lb.—*George Kent, Ltd., Luton, Bedfordshire.*

Jackson Boilers

New showrooms were opened in Bristol at 142, Victoria Street, by Mr. Maddock, Sales Director, Jackson Boilers, Ltd., on April 5, 1951. The new premises are situated on a corner site close to Temple Meads Station, and it has three spacious windows. The West Country Manager, Mr. John Vickers, will have an office in the premises.

Publications

The following publications have been received, which will be of interest to the industry, and are available at the addresses given:

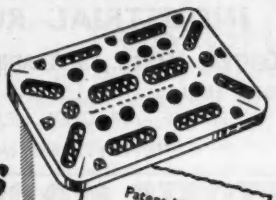
The Incandescent Heat Co., Ltd., Cornwall Road, Smethwick, Birmingham, leaflet V.12A, which illustrates and describes a new method of heating bars, tubes, sections, etc.

The Morgan Crucible Co., Ltd., Battersea Church Road, London, S.W.11, publication F.D.5, entitled 'Morgan Lift-out Crucible Furnace.'

The Quasi-Arc Co., Ltd., Bilston, Staffs., brochure dealing with the 'Unionmelt' automatic welding process.

Richard Sutcliffe, Ltd., Universal Works, Horbury, Wakefield, set of five pamphlets dealing with industrial conveying.

Chrome Grill Deflectors



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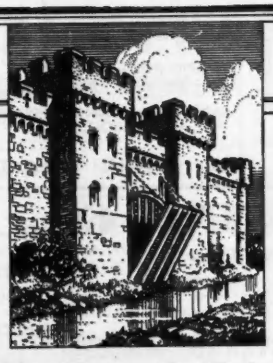

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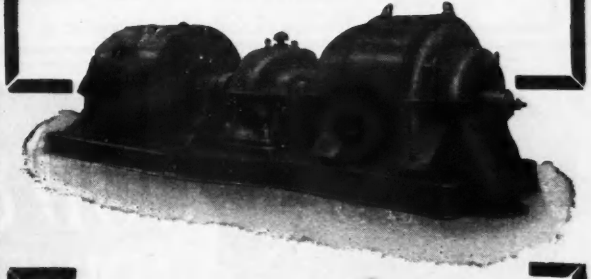

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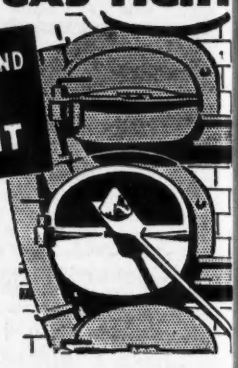
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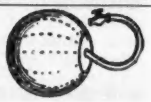
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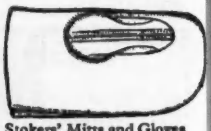
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Classified Advertisements: All small classified advertisements are charged at 1/9 per line (approx. 7 words) - minimum charge 10/6. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

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Specifications, Conditions of Contract, and Form of Tender may be obtained on application to Mr. W. D. REES, Assoc.M.Inst.GasE., Engineer, Port Talbot Undertaking.

Tenders enclosed in plain, sealed envelopes, endorsed "BOILER PLANT" and addressed to the undersigned, to be received not later than Wednesday, June 27, 1951.

The Board does not bind itself to accept the lowest or any Tender.

W. F. EDWARDS, F.C.I.S.,
Assoc.Inst.Gas E.,
General Manager and Secretary.

Gas Offices,
18, Station Road,
Port Talbot, Glam.

WALES GAS BOARD
LLANDUDNO UNDERTAKING.

TENDERS are invited for the supply, delivery and erection of all refractory materials, steelwork and ironwork necessary for the completion of a No. 7 BED FOR THE HORIZONTAL RETORT INSTALLATION at the Llandudno Gas Works, Maes Du Road, Llandudno. Tenderers should first visit the site for full particulars.

The materials should include for a 30-ton capacity Coal Hopper, Hydraulic Main Sections, all Refractories above regenerator level, Tar and Gas Valves, extension of Coal Hopper Gangway, Ascension Pipes, Mouthpieces, Lids, Arch Pipes, etc.

The project is of an urgent character and Tenders, in a plain sealed envelope, endorsed "Tender for No. 7 Bed," should be sent to the undersigned to be received not later than noon on Friday, July 20, 1951.

H. ALLERTON, M.Inst. Gas E.,
M.Inst.F.,
Engineer and Manager.

Wales Gas Board,
Llandudno Undertaking,
Gas Offices,
Market Street,
Llandudno.
May 28, 1951.

WALES GAS BOARD
PORT TALBOT UNDERTAKING.

TENDERS are invited for the supply, delivery and installation at the Aberavon Gas Works of the above Undertaking, of a CONDENSING PLANT capable of dealing with 6½ million cu. ft. per day of carburetted water gas.

Specification, Conditions of Contract, and Form of Tender may be obtained on application to Mr. W. D. REES, Assoc.M.Inst. Gas E., Engineer, Port Talbot Undertaking.

Tenders enclosed in plain sealed envelopes, endorsed "Condensing Plant" and addressed to the undersigned, should be received not later than Wednesday, June 27, 1951.

The Board does not bind itself to accept the lowest or any Tender.

W. F. EDWARDS, F.C.I.S.,
Assoc.Inst.Gas E.,
General Manager and Secretary.

Gas Offices,
18, Station Road,
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APPOINTMENTS VACANT

NORTH THAMES GAS BOARD

A SENIOR DRAUGHTSMAN is required in the Chief Engineer's Department at Westminster.

Applications are invited from candidates, not less than thirty years of age, who are experienced in the design, layout and detailing of mechanical handling plant. The starting salary would be in the region of £650 per annum.

Thd appointment is of a permanent nature, and pension arrangements will be discussed with short list candidates.

Applications, stating age and full particulars of training and experience, should be sent to the Staff Controller, North Thames Gas Board, 30, Kensington Church Street, London, W.8, quoting reference number 10,000.

SOUTHERN GAS BOARD
CENTRAL DIVISION.
READING AND DISTRICT GAS UNDERTAKING.
TECHNICAL ASSISTANT.

APPLICATIONS are invited for the post of TECHNICAL ASSISTANT with the above Undertaking.

Applicants should possess the Ordinary Grade Certificate in Gas Engineering as a minimum qualification.

The salary will be in accordance with qualifications and experience and will be in the range of A.P.T. Salary Grades IV or V of the National Joint Council for Gas Staffs.

Applications stating age and giving full particulars of training, qualifications and experience should be sent as soon as possible to the undersigned.

W. BELL,
Group Manager.

King's Road,
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SOUTH WESTERN GAS BOARD
MACHINE ACCOUNTANT.

APPLICATIONS are invited for the appointment of a MACHINE ACCOUNTANT tenable in the Chief Accountant's Department in Bath in the first instance. The main duties attaching to the appointment will be connected with the installation and operation of "Powers" forty column punched card equipment as applied to the Board's financial and costing functions and it is essential, therefore, that candidates should have a wide experience of punched card accounting in one or more of the Public Utility industries, preferably including the Gas Industry. Possession of a recognised accountancy qualification, though not essential, would be an advantage.

The salary for the appointment will be in the range from £800 to £1,000 per annum, and the commencing salary will be determined in accordance with the qualifications and experience of the person appointed.

The successful candidate will be required to pass a medical examination and the appointment will be subject to the provisions of such superannuation scheme as may be adopted by the Board.

Applications, stating age, qualifications, experience, present appointment and salary, together with the names of two referees, should be sent to the undersigned to be received not later than Wednesday, June 20, 1951.

W. N. CURTIS,
Secretary and Solicitor.

9a, Quiet Street,
Bath.
May 30, 1951.

(Classified advertisements continued on Supplement 4)

APPOINTMENTS VACANT (ctd.)

DRAUGHTSMAN with sound knowledge of gasworks and allied chemical plant design required. Age 35 or upwards. Pension scheme. Permanent position to suitable applicant.

Fullest details of experience, age and salary, to R. & J. DEMPSTER, LTD., Gas Plant Works, Manchester 10.

APPLICATIONS are invited for the position of TECHNICAL ESTIMATING ENGINEER with firm of Gas Plant Makers. Applicants should have sound engineering workshop experience and practical and technical knowledge of gas and chemical engineering practice and applied chemistry. Pension scheme and permanent position for suitable man.

Full details of experience, age and salary required to No. 9965, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

A DRAUGHTSMAN aged 25 to 30 is required for the Clarence By-Product and Distillation Plant of Messrs. Dorman Long & Co. Limited. Applicant should be good, all-round man, preferably with experience of the above type of plant. Permanent employment with good prospects to competent man with initiative. Pension scheme in operation. Apply stating age, salary required, when at liberty, and giving full particulars of technical education and experience to : Chief Technical Engineer, Dorman Long & Co. Limited, Central Engineering Department, Royal Exchange, Middlesbrough.

WALES GAS BOARD

CARDIFF UNDERTAKING.

WORKS CHEMIST.

APPLICATIONS are invited from suitably qualified persons for the above-mentioned post, the salary for which will be within the Grade A.P.T. VIII (£540 to £620).

Applicants must be capable of carrying out all the routine gasworks tests, including the analysis of coal, coke and by-products.

Experience on a gasworks is an essential qualification.

Applications, stating personal details, particulars of training, qualifications and experience, and giving the names of two referees, should reach the undersigned not later than June 18, 1951.

FRANK BOARDMAN,
Engineer and Manager.

Gas Offices,
Bute Terrace,
Cardiff.

EAST MIDLANDS GAS BOARD

APPOINTMENT OF GROUP MANAGER.

GAINSBOROUGH GROUP.

APPLICATIONS are invited from persons experienced in administration and control of gas undertakings, for the position of GROUP MANAGER of the Gainsborough Group which consists of the Gainsborough, Kirton-in-Lindsey and Market Rasen Undertakings. Commencing salary not less than £850 per annum.

The applicant appointed will be responsible to the General Manager of the Lincolnshire Division for the operation of the Group.

The appointment will be subject to the provisions of any superannuation scheme which the Board may adopt, and the successful candidate may be required to pass a medical examination.

Applications, stating age and giving full details of education, qualifications and experience, together with the names of two referees, should be addressed to the undersigned for receipt not later than June 23, 1951.

A. GWYNNE DAVIES,
Secretary.

Beverley House,
University Road,
Leicester.

NORTH WESTERN GAS BOARD

BLACKBURN GROUP.

GAS ENGINEERING DRAUGHTSMAN—
GREENBANK WORKS, BLACKBURN.

APPLICATIONS are invited from suitably qualified draughtsmen for the above position within the salary range of £500-£580 per annum (Grade A.P.T. VII of the National Salary Scales).

Candidates should have received their training at a large Gas Undertaking and/or with a firm of Gas Engineering Contractors, and should have experience of general engineering, building construction, steel structures, gas supply, etc.

The successful applicant may be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt.

Applications, appropriately endorsed, giving personal details, particulars of training, qualifications and experience, together with the names and addresses of two referees should reach the General Manager, North Western Gas Board (Blackburn Group), Cardwell Place, Blackburn, not later than twelve days after the publication of this advertisement.

NORTH WESTERN GAS BOARD

BLACKBURN GROUP.

SENIOR DISTRICT DISTRIBUTING ENGINEER,
BLACKBURN DISTRICT.

APPLICATIONS are invited for the post of SENIOR DISTRICT DISTRIBUTING ENGINEER in the Blackburn Group.

The successful applicant will be responsible for the distribution of gas in a part of the Blackburn District's area and will also be required to assist the Group Distributing Engineer in his Group control.

Applicants should hold the Higher Grade Certificate of the Institution of Gas Engineers and have experience in the design and installation of high pressure gas supply.

The Salary will be within the range of £570-£670 per annum.

The successful applicant may be required to pass a medical examination, and to subscribe to such scheme of superannuation as the Board may adopt.

Applications, stating age, qualifications and details of training and experience, together with the names and addresses of two referees, should reach the General Manager, North Western Gas Board (Blackburn Group), Cardwell Place, Blackburn, within twelve days of the date of publication of this advertisement.

WEST MIDLANDS GAS BOARD

WORCESTERSHIRE-HEREFORDSHIRE DIVISION.

REDDITCH DISTRICT.

SHIFT SUPERINTENDENT.

APPLICATIONS are invited from suitably qualified persons for the above position.

Applicants should be experienced in modern Gas Works practice, including, in particular, the practical operation of Continuous Vertical Retorts. The successful candidate will be required to supervise shift men and take charge of gas production generally.

The salary for the post will be not less than £425 per annum on commencement, rising by annual increments to a maximum of £505 per annum, in accordance with Grade V of the salary scales of the National Joint Council for Gas Staffs.

The successful candidate may be required to pass a medical examination and the appointment will be subject to such Superannuation Regulations as the Board may, in due course, adopt. Housing accommodation will be available to the successful applicant at an early date.

Applications stating age, qualifications and experience and accompanied by the names of two referees, should be addressed to Mr. C. F. W. Rendle, Divisional Manager, West Midlands Gas Board, Worcestershire-Herefordshire Division, 12, St. Nicholas Street, Worcester, to reach him not later than fourteen days after the appearance of this advertisement.

Applicants are requested to quote ref. T.P.3 when replying to this advertisement.

F. H. CURETON.
Secretary.

REPAIRS

FOR PUBLIC LIGHTING
CLOCK CONTROLLER REPAIRS.
(A.I.D. approved)
BRIGHT, SON & CO.
(CLERKENWELL) LTD.
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Cannonbury 2049 Brifulson, Nordo, London.

LEEDS X.L PLASTIC FIRE CEMENT
FOR
BUILDING & REPAIRING
FIREBRICK WORK ETC
LEEDS X.L FIRE CEMENT CO., HYDE PARK, LEEDS.

HUMIDINE
NON-SETTING PAINT

Used by the leading Gas Companies for the protection of lower plates and cuppings of Gasholders. The most efficient anti-corrosion paint in existence. HUMIDINE never cracks, never dries and is absolutely impervious to water. OXYGRAFITE GASWORKS PAINT is also manufactured by . . .

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CARLETON - SKIPTON - YORKS
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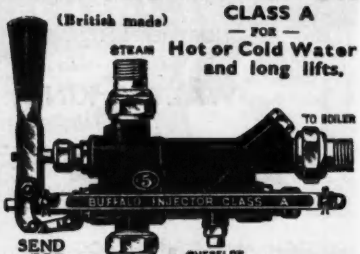
n.d.b.

MISCELLANEOUS

SMALL single truckloads and larger quantities of good ROUGH BREEZE from any gasworks large or small, in the United Kingdom required by merchants paying own railway tolls. Cash price and particulars to No. 9378, *Gas Journal*, 11 Bolt Court, Fleet Street, London, E.C.4.

MOISTURE TESTING for coal, coke and ash and many chemicals. Modern method is "SPEEDY" MOISTURE TESTER, giving accurate percentage water in 2-3 minutes. Already in use extensively in gas industry. Needs no electricity, no graphs. Portable, simple for use by unskilled labour. Write for illustrated brochure, or order direct. £21 10s. complete. Thos. Ashworth & Co. Ltd. (Dept. G.J.2), Basket Street, Burnley, Lancs.

BUFFALO INJECTOR
(British made) CLASS A
— FOR —
STEAM **Hot or Cold Water and long lifts.**



SEND FOR LIST
GREEN & BOULDING, LTD
163a, Dalston Lane,
LONDON, E.8.

THE "FLUXITE QUINS" AT WORK

"Through FLUXITE, it's perfectly plain
This ball-cock will function again".
"I know" cried EE,
"But smart plumbers see,
The water's turned off at the main!"

For all SOLDERING work—you need FLUXITE—the paste flux—with which even dirty metals are soldered and "tinned." It does not "poison" the solder nor corrode the metal—and can be used with safety even on sensitive apparatus.

With Fluxite, joints can be "wiped" successfully that are *impossible by any other method.*

FLUXITE has been used for over 40 years in Government Works and by the leading Engineers and Manufacturers. OF ALL IRONMONGERS—In tins—From 1/- upwards.

The FLUXITE GUN puts FLUXITE where you want it by a simple pressure. Price 2s. 6d. or filled 3s. 6d.

ALL MECHANICS *WILL* HAVE

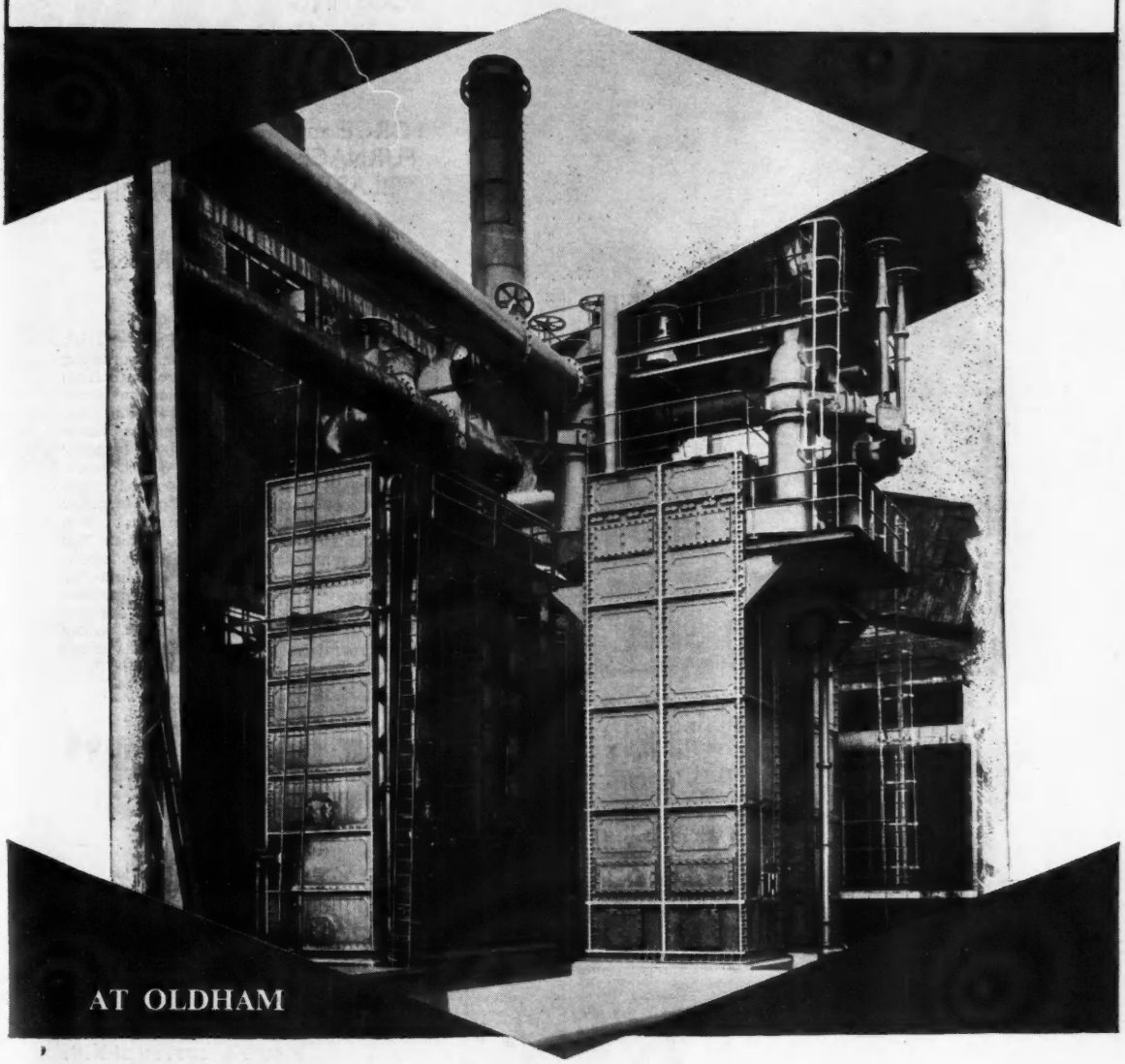
FLUXITE

IT SIMPLIFIES *ALL* SOLDERING

Write for Leaflets on CASE HARDENING STEEL and TEMPERING TOOLS with FLUXITE also on "WIPED JOINTS." Price 1d. each.

Fluxite Ltd. (Dept. G.J.), Bermondsey Street, S.E.1

MODERN CONDENSING PRACTICE



AT OLDHAM

Two types of Holmes high efficiency Condensers installed at the Oldham Gasworks.

Left. Super Type Horizontal Tube Condensers mounted upon tar and liquor separators.

Right. Multipass Vertical Tube Condensers, incorporating Holmes patent sprays for maintaining clean internal conditions.

Reproduction by courtesy of the North Western Gas Board.

FOUNDED 1850
HOLMES
HUDDERSFIELD

W. C. HOLMES & CO. LTD · TURNBRIDGE · HUDDERSFIELD

Telephones: HUDDERSFIELD 5280 LONDON: Victoria 9971 BIRMINGHAM: Midland 6830

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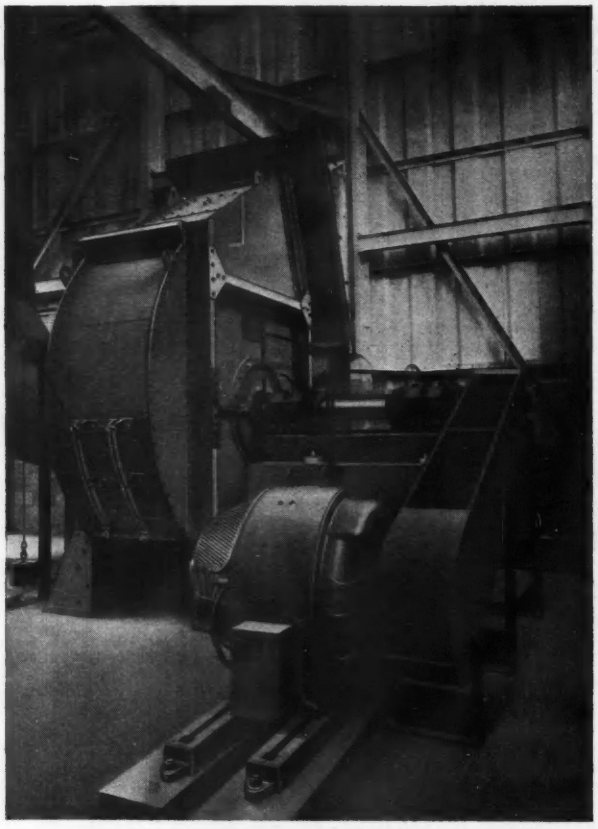

A Keith Blackman Induced Draught Fan in Operation.

VENTILATION — HEATING

GAS BOOSTING and EXHAUSTING — MECHANICAL DRAUGHT

FURNACE RE-CIRCULATING

FORGE and FURNACE BLAST — COLD AIR DOUCHE

MAN-COOLING — DRYING

WE make all types of Fans—"High Efficiency" for boosting or exhausting gas up to 3 lbs. p.s.i. and for volumes from 5,000 to 1,500,000 cfph; Cast Iron and Steel-plate "Pressure" fans for up to 2 lbs. p.s.i. air blast to furnaces, forges, water gas plants, burner equipment, etc; "Turbo" fans for applications requiring up to 6 lbs. p.s.i.; "Centrifugal" fans for draught on boiler fires to ensure economical steam production, or for cold air douche to workers in retort houses, etc.; "Centrifugal" or "Axial" fans for supplying ventilating air through ductwork; "Propeller" fans for moving air in volume for ventilating; "Propeller" fans on portable structures for cooling workers at furnace fronts; and "Tenaxe" fans for re-circulating high temperature gases and air in various types of heat treatment furnaces.

"KEITH-BLACKMAN"

FANS *for every purpose*

BOOKLET 20/8
Pictorial survey of K.B. products
FREE ON REQUEST

When you need Fans for moving air or gas give us an opportunity of making practical suggestions.

KEITH BLACKMAN LTD
MILL MEAD ROAD, TOTTENHAM, LONDON, N.17.
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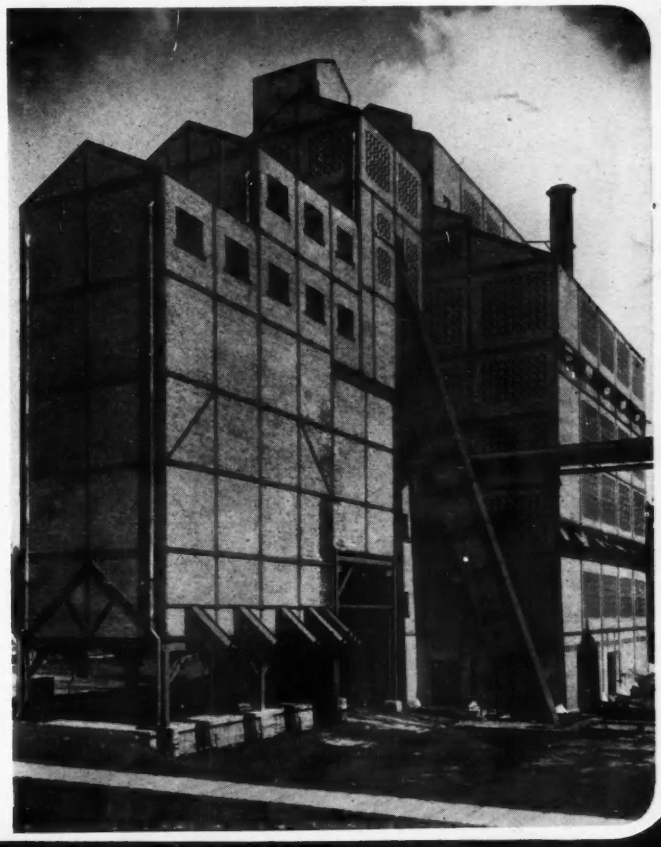
LEEDS, 1: 40/41 Royal Exchange Chambers. TN: Leeds 27286. NEWCASTLE-ON-TYNE 1: 21 Mosley St. TN: Newcastle 22284.
SCOTLAND: 90 Mitchell Street, Glasgow, C1. TN: Central 7973. IRELAND: 7 Brunswick St. Belfast. TN: Belfast 21114.
SOUTH WALES: 127 Stanwell Road, Penarth, nr. Cardiff. TN: Penarth 249.

Printed by STRAKER BROTHERS LTD., E.C.2, for WALTER KING, LIMITED, 11, BOLT COURT, FLEET STREET, LONDON, E.C.4. Wednesday, June 6, 1951.

Work in progress



BOX HILL, VICTORIA AUSTRALIA

A view of the Coke Plant end of the new Glover-West Retort House.

West's Gas IMPROVEMENT CO., LTD.

MILES PLATTING, MANCHESTER, 10

Telephone: COLlyhurst 2961-5. Telegrams: Stoker, Manchester.

Telephone: HOLborn 4108-9. Telegrams: Wesgasco, Estrand.

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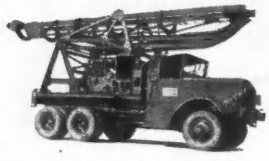
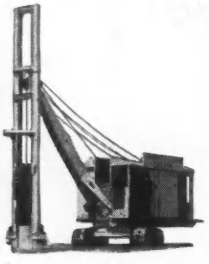
PROVIDES SECURE F[illegible]DATIONS FOR ANY STRUCTURE

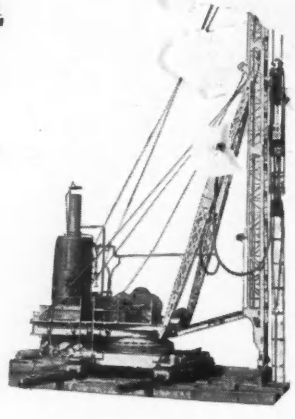
PLANT FOR DRIVING OU[illegible] SPECIALISED SYSTEM OF [illegible]NG



(A) Mobile petrol-diesel outfit for small contracts.
2-ton Drop Hammer.



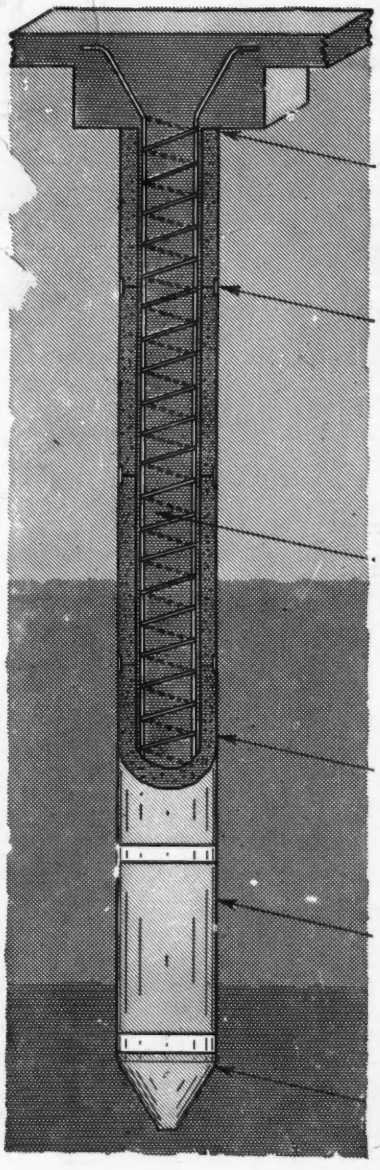
(B) Small mobile diesel outfit for undulating sites.
3-ton Drop Hammer.



(D) Typical steam frame for extensive sites.
4-ton Steam Hammer.

(C) Medium mobile diesel outfit for undulating sites.
3-ton Drop Hammer.

(E) Large mobile diesel outfit for undulating sites.
3-5 ton Drop Hammer.



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CONCRETE CORE AND STEEL REINFORCEMENT NOT FATIGUED AS IT IS PLACED AFTER SET IS OBTAINED

REINFORCED PRECAST CONCRETE SHELLS ENSURING A CONSTANT CROSS SECTION

SKIN FRICTION RETAINED AS INITIAL SET IS NOT DISTURBED

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NO WASTAGE — NO COSTLY EXTENSIONS
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